

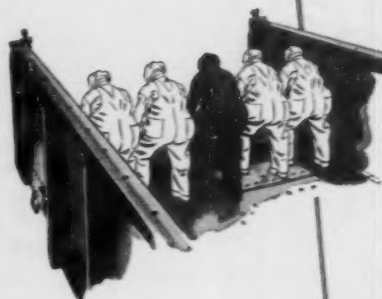
May 7, 1956

All About "Train X" ... p. 40

RAILWAY AGE

WORKBOOK OF THE RAILWAYS

THE INDUSTRY'S ONLY WEEKLY NEWSMAGAZINE



**One man
DOES THE WORK
OF FIVE!**

**WHEN YOUR
GONDOLAS
ARE EQUIPPED
WITH...**



**DROP END
BALANCERS**

THE WINE RAILWAY APPLIANCE COMPANY • TOLEDO 9, OHIO

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Armco Corrugated Metal Drainage Structures have material durability and structural strength to meet railroad service conditions. Installation is easy and economical and there is practically no maintenance.

Armco Pipe diameters range from 8 inches to 15 feet. And pipe-arch structures are supplied in comparative sizes. Choice of gages to meet any strength requirement. For severe erosive or corrosive conditions there is Armco PAVED-INVERT or ASBESTOS-BONDED Pipe and Pipe-Arch. Armco Drainage & Metal Products, Inc., 3656 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.



ARMCO DRAINAGE STRUCTURES

ARMCO PRODUCTS FOR RAILROAD APPLICATIONS: Corrugated Metal Pipe • Pipe-Arch • MULTI-PLATE Pipe and Pipe-Arch • Bin-Type Retaining Walls • Perforated Subdrainage Pipe • Steel Buildings • FLEX-BEAM Guardrail • Tunnel Liner Plates • Foundation Pile Shells



This photo, taken in 1922, shows 48-inch-diameter Armco Corrugated Metal Pipe installed in 1910.



Recent photo of this 46-year-old Armco Corrugated Metal Pipe shows practically no change.

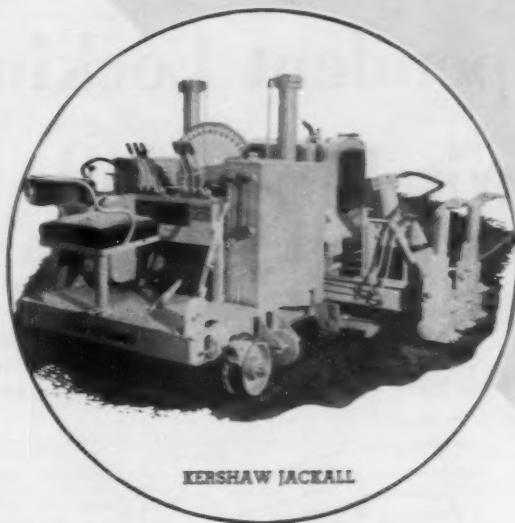
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SCARIFIER AND PLOW



KERSHAW TRACK BROOM



KERSHAW JACKALL

The Kershaw Ballast Regulator, Scarifier and Plow, requiring only an operator and helper, will scarify, break mud pockets and plow old ballast away from the ends. After the ballast is unloaded from your ballast cars, it will place and distribute the ballast ahead of the tamper.

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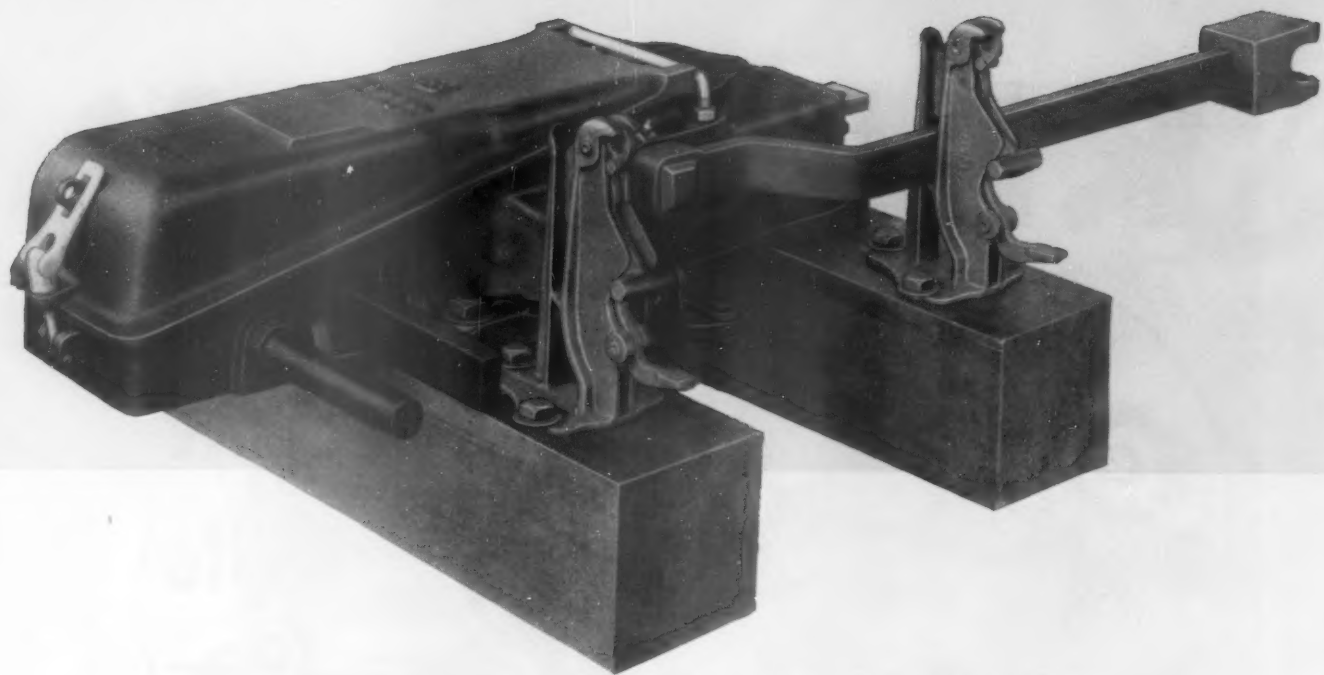
The Ballast Regulator then comes back to regulate, shape and finish the ballast shoulder.

*Fast, Economical
Track Reconditioning...*

*Recognize This
Symbol of Leadership*

Put these three machines
in each of your surfacing
and reconditioning gangs





You can have either **Dependent or Independent Locking** with **UNION** Switch Stands

Do you prefer to control the locking of your cross-over switches from one point . . . or independently? And at single switches, do you prefer to operate a pipe-connected derail from the switch stand? With UNION Switch Stands you can have any of these arrangements, because of the exceptionally high degree of flexibility afforded by the optional dependent or independent lock bar assemblies.

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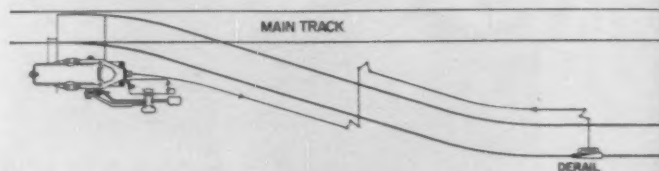
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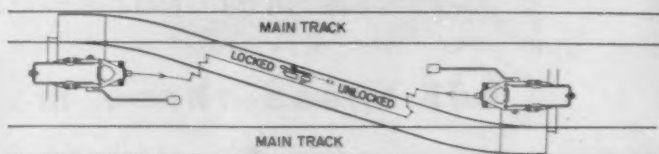
ST. LOUIS

SAN FRANCISCO

DEPENDENT LOCK BAR. Where a dependent lock bar is used, it can be connected, by means of a pipe line, to a derail as shown, or to the independent lock bar of another switch stand.



Electric locking can be applied effectively and conveniently to either of the layouts illustrated.



INDEPENDENT LOCK BAR. Where an independent lock bar is used, it can be controlled through a pipe line connection to an auxiliary lever, or another switch stand . . . for example, the main-track to main-track arrangement shown above, in which the independent lock bar of each switch stand is controlled by the crossover center lever.

Vol. 140, No. 19
May 7, 1956

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CONTENTS and Week at a Glance

User Charges on the Waterways . . .

. . . are overwhelmingly supported by the nation's shippers, who, seeing no reason to subsidize water carriers call for equalization of competition through tolls. They back up recommendation of the Hoover Commission which last year advocated having ICC fix charges. . . . p.7

Jungle Law Rules the Transport Field . . .

. . . because so much carriage is unregulated, the House subcommittee considering proposed legislation to implement recommendations of the Cabinet Committee on Transport Policy was told last week. It was pointed out to the House group that 75% of truck operators and 90% of water carriers are unregulated. . . . p.8

FORUM: Supplier allies enlisted for action . . .

. . . For the first time in many years the railway supply industry is organized to give aggressive support to economically sound transportation policies. This enlightened self-interest is in the public interest, as well as railroads. . . . p.39

Now "Train X" is ready to roll . . .

. . . Latest entry in the field of lightweight passenger trains is the New York Central's "Xplorer," as the road calls its Pullman-Standard-manufactured concept of "Train X." It will enter Cleveland-Cincinnati revenue service on or about May 29, on a schedule of approximately five hours. . . . p.40

What is "Train X" like . . .

. . . and what makes it different? Part of the answer is that air springs keep the car bodies at a constant height, regardless of load, that its body construction is basically an exterior box in which a tight interior box is flexibly mounted, and that it has removable zippered upholstery. . . . p.42

Diesel Mec-hydro powers "Xplorer" . . .

. . . New concepts in design and arrangement have been applied to the "Xplorer" locomotive, just as they have been applied to the train it hauls. The 174,000-lb passenger power unit delivers all its 1,000 traction horsepower through a two-

RAILWAY AGE

Current Statistics

Operating revenue, two months	
1956	\$1,645,858,716
1955	1,479,733,207
Operating expenses, two months	
1956	\$1,302,523,359
1955	1,154,849,156
Taxes, two months	
1956	\$169,354,631
1955	148,763,957
Net railway operating income, two months	
1956	\$129,907,635
1955	136,462,623
Net income, estimated, two months	
1956	\$93,000,000
1955	98,000,000
Average price 20 railroad stocks	
May 1, 1956	109.24
May 3, 1955	96.13
Carloadings revenue freight	
Sixteen weeks, 1956	11,171,088
Sixteen weeks, 1955	10,347,663
Average daily freight car surplus	
Wk. ended Apr. 28, 1956	5,567
Wk. ended Apr. 30, 1955	17,954
Average daily freight car shortage	
Wk. ended Apr. 28, 1956	6,405
Wk. ended Apr. 30, 1955	3,474
Freight cars on order	
April 1, 1956	137,070
April 1, 1955	17,974
Freight cars delivered	
Three months, 1956	15,029
Three months, 1955	7,263
Average number of railroad employees	
Mid-March 1956	1,041,159
Mid-March 1955	1,007,648

RAILWAY AGE IS A MEMBER OF ASSOCIATED BUSINESS PUBLICATIONS (A.B.P.) AND AUDIT BUREAU OF CIRCULATION (A. B. C.) AND IS INDEXED BY THE INDUSTRIAL ARTS INDEX, THE ENGINEERING INDEX SERVICE AND THE PUBLIC AFFAIRS INFORMATION SERVICE. RAILWAY AGE, ESTABLISHED IN 1856, INCORPORATES THE RAILWAY REVIEW, THE RAILROAD GAZETTE, AND THE RAILWAY AGE GAZETTE. NAME REGISTERED IN U. S. PATENT OFFICE AND TRADE MARK OFFICE IN CANADA.

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Workbook of the Railways

Week at a Glance CONTINUED

axle front truck, on which are mounted the engine, transmission, drive shafts and axle drives. . . . p.48

Not just a yard, but a complete "railroad city" . . .

. . . is an apt description for the Kansas City Southern's new \$8.5 million Deramus yard. The installation includes a classification yard and an engine terminal, plus all facilities necessary for concentrating the road's administrative, freighthouse, roadway and other terminal operations at Shreveport, La., in the one area. . . . p.52

All wires on one pole line . . .

. . . The Norfolk & Western is about to complete a project said to be the most extensive change-over in the history of railroad communications. All present and foreseeable future needs for communications are to be met by an arrangement of four pairs of line wires on one 10-in. crossarm added to the signal pole line. . . . p.64

BRIEFS

A stepchild of Congress . . .

. . . is what the ICC is being treated as, according to Commission Chairman Arpaia who joined Commissioner Clarke at Miami recently in defending the regulatory body against attacks by the Senate Small Business Committee. Despite the commission's budgetary "undernourishment," Mr. Arpaia said, critics tend to "horsewhip" it for less than miraculous achievements. "You can't do a 10-ton job with a wheelbarrow," he protested.

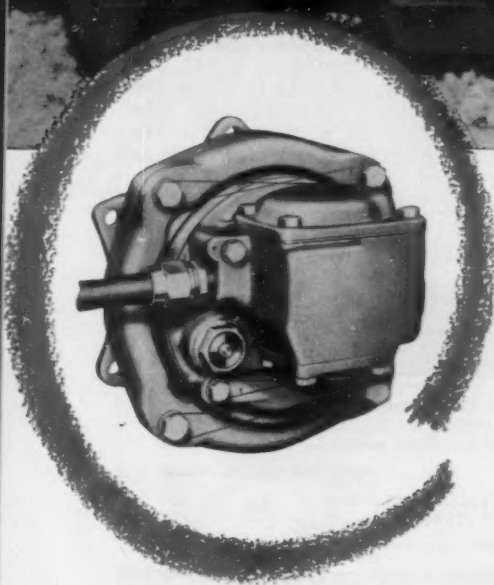
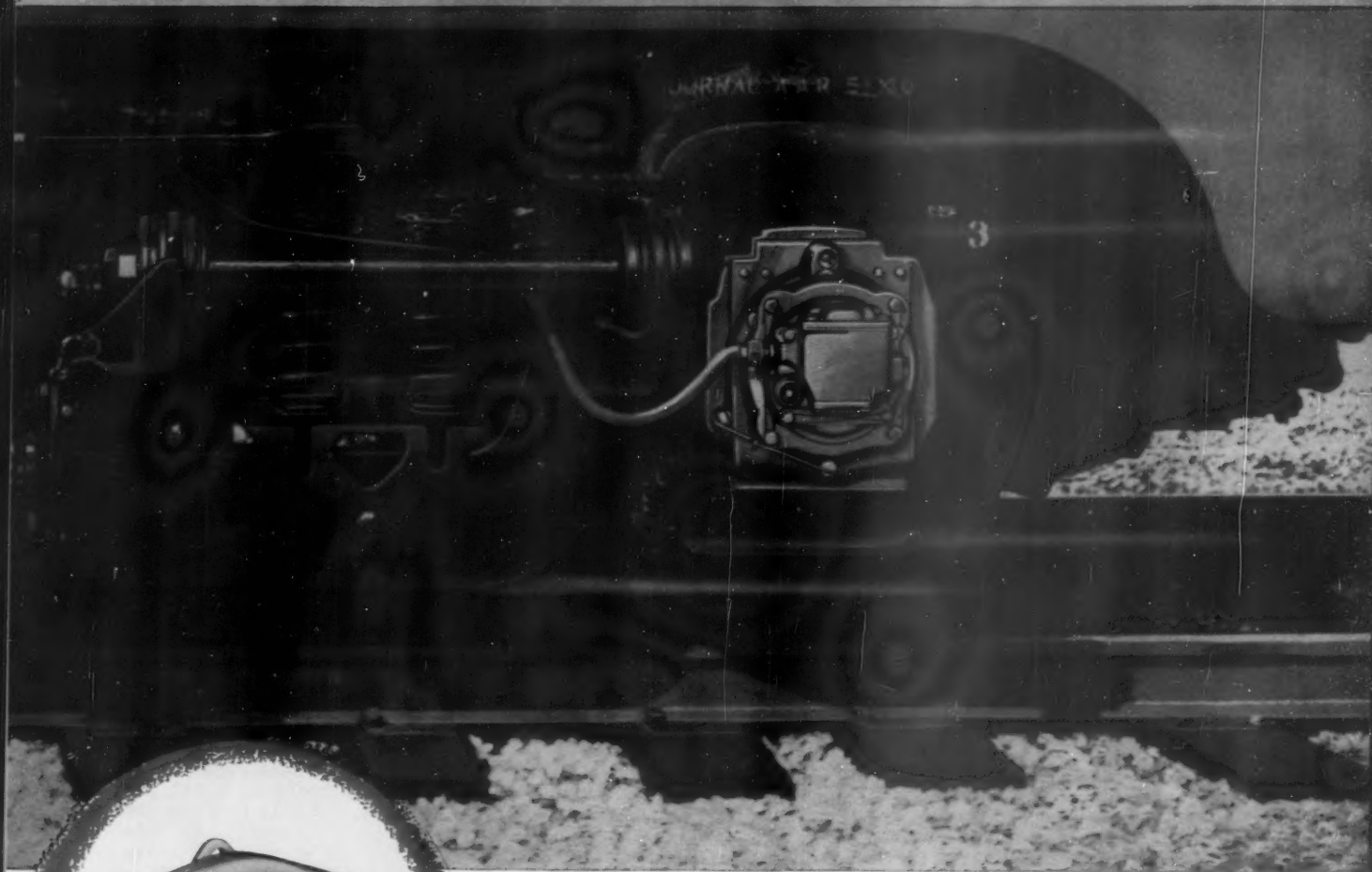
NWP passenger train rolls again . . .

. . . for the first time since floods closed the line last December 19. The passenger train between San Rafael, Calif., and Eureka went back into service April 29. Freight service has been operating over the line for some time.

Credit cards more useful . . .

. . . Now there are 57 roads participating in the Rail Travel Credit Agency plan. More than 220,000 cards are currently in use. The latest roads to join the plan are the Nickel Plate, Southern, L&N, NC&StL, FEC, ACL, SAL, A&WP, WofAla, and RF&P.


What's the difference between a *SLIP* and a *SLIDE*?



THE DIFFERENCE can easily mean a car out of service and a costly wheel-turning job.

The Westinghouse AP Decelostat® Controller relieves braking pressure the instant wheel slip *starts*—the slip is arrested *before it can develop into a slide* . . . and you save the delays and the cost which would otherwise result.

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Standard Engineer's Field Report

CASE HISTORY
Calol Filter Coat
PRODUCT

Milwaukee R.R.
FIRM *Tacoma, Washington*

Special adhesive coating increases efficiency of filters up to 50%



THE MILWAUKEE ROAD has used Calol Filter Coat on impingement-type car body and engine air intake filters since 1953, when it was first available to railroads. It proved completely superior to previous oils on these filters, increasing efficiency up to 50%—according to the District Diesel Supervisor. To service the great number of filters in use, the company installed a special production line. Coating process starts with steam and chemical cleaning of filters, then dipping in heated Calol Filter Coat (above). After draining 15 min-

utes, filters are placed in drying ovens. Calol Filter Coat gives complete protection not only against heavy dirt and dust, but grit from sanding. Even under these adverse operating conditions, Calol Filter Coat did not drip off screens, but maintained its high wicking ability, and kept dust and grit out of engines.

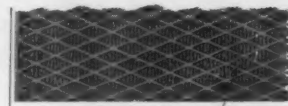


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FREE CATALOG: "How to Save Money on Equipment Operation", will be sent on request to Standard Oil Company of California, 225 Bush St., San Francisco.

FOR MORE INFORMATION about this or other petroleum products, or the name of your nearest distributor, write or call Standard Oil Company of California.

Why Calol Filter Coat ups efficiency of air filters



Will not drip off screens—
gives full filtering efficiency
through entire service period.

Easily applied and cleaned.

High wicking ability—quickly
soaks dust particles.

STANDARD OIL COMPANY OF CALIFORNIA, San Francisco 20 • STANDARD OIL COMPANY OF TEXAS, El Paso
THE CALIFORNIA OIL COMPANY, Perth Amboy, New Jersey • THE CALIFORNIA COMPANY, Denver 1, Colorado

THE COUNTRY'S SHIPPERS SAY...

Make Water Carriers Pay Own Way

Hoover Commission recommendation for user charges supported by industrial traffic men—"Fair share" theories redirected

Are the country's inland waterways operators, who account for some 15% of all intercity freight business, an "anachronistic boondoggle?" Would tolls for use of the waterways put the operators out of business?

Should national taxes go for maintenance and future development of water routes without direct assessment on users of these facilities? Should railroads and motor carriers, as part of the general public, have to subsidize inland waterways business, of which 73% is estimated to be done in industry-owned vessels?

Questions like these are raised in comments by industrial traffic representatives polled by Railway Freight Traffic, monthly companion publication of Railway Age.

Nearly three out of four traffic men voiced the opinion that commercial users of waterways should be made to pay for maintenance and operating costs. Of 72 quizzed, 53 went on record supporting the so-called Hoover Commission which advocated direct user charges in its study of the nation's water power and resources.

To Equalize Competition—The reason most generally advanced by the traffic men for supporting user charges was that tolls would make

for fairer competition between water carriers on one hand and railroads, truck companies and air lines on the other.

Evening up competition among shippers, too, was frequently cited to support user charges, the argument being that free use of waterways discriminates against companies that can't ship via rivers, lakes and canals. Other shippers favored tolls as a matter of general fairness to taxpayers and the public at large.

"Basically it constitutes unfair competition," to permit free use of waterways, H. F. Hanson, Brunswick-Balke-Collender Company (Chicago) traffic manager said. Since railroads, trucks, and air lines are saddled with taxes, "it is only reasonable for each form of transportation to assume its share of the cost of upkeep" to maintain its routes, he asserted.

"Tax money should not be used for development of facilities for private companies' benefit," said R. G. Searce, traffic manager, Apple Growers Association, Hood River, Ore.

Shippers' attitudes echoed the opinion of a special report to the "task force" considering navigational problems for the Hoover Commission, in which it was held that user charges would abolish "competitive inequalities" between transport sys-

"HOOVER" GROUP FINDINGS

"The Federal navigation program is a direct subsidy to a comparatively limited number of shippers . . . It is not fair . . . nor is it a sound political or fiscal practice . . .

"User charges . . . would discourage the promotion of new projects of dubious worth and . . . maintenance of improvements which have outlived their usefulness . . . There is [nothing] to support user charges for the Panama Canal and on the St. Lawrence Seaway which does not equally support user charges for inland waterways."

RECOMMENDED: "That Congress authorize a user charge on inland waterways . . . to cover maintenance and operation, and authorize the Interstate Commerce Commission to fix such charges."

tems to the ultimate benefit of the public.

The task force was headed by Admiral Ben Moreell, chairman of the board, Jones & Laughlin Steel Corporation. The unit considering navigational matters was made up of C. H. Brown, former manager engineering and manufacturing services, Kodak Company; P. F. Brock, counsel, Coca Cola Company; and J. P. Growdon and L. V. Murrow, consulting engineers.

"All forms of transportation should accept their fair share in the present economic situation," said G. E. Dean, traffic manager, Birdsboro (Pa.) Steel Foundry & Machine Co., in the Railway Freight Traffic poll. W. A. Smedley, traffic manager, American Screw Company, Williamantic, Conn., said waterborne carriers should "pay their fair share of maintenance."

From the shippers' viewpoint, Bob C. Worley, commissioner, Fort Smith

DISTRIBUTION OF INTERCITY TON-MILES

Year	Railway Revenue Ton-Miles Billions	% of Total	Highway Ton-Miles Billions	% of Total	Inland Waterways Ton-Miles* Billions	% of Total	Total** Billions
1940	379.201	61.3	62.043	10.0	118.057	19.1	618.592
1945	690.809	67.3	66.948	6.5	142.737	13.9	1,027.115
1950	596.940	56.2	172.860	16.3	163.344	15.4	1,062.637
1951	655.353	55.6	188.012	15.9	182.216	15.5	1,178.075
1952	623.373	54.5	194.607	17.9	168.367	14.7	1,144.264
1953	614.199	51.0	217.163	18.0	202.439	16.8	1,204.098
1954 p	556.537	49.5	214.626	19.1	173.679	15.5	1,124.462

*Including Great Lakes.

**Including oil pipe lines and airways ton miles.

p Preliminary.

(Ark.) Traffic Bureau, declared "inland waterway transportation, in effect, is being subsidized, thereby giving an artificial advantage in transportation charges . . . to users located on navigable rivers." N. S. Worrell, traffic vice-president, American Zinc, Lead & Smelting Co., St. Louis, called it unfair to make the small shipper pay taxes for waterway facilities available only to large

volume industrial shippers.

Southworth Lancaster of the Boston University College of Business Administration called it economically unsound "for an enterprise to be conducted on a basis where its operating costs do not reflect the true cost of providing the service."

The soundness of a business needing subsidy in the form of free use of public facilities was also attacked

by Oliver Plymate, traffic manager, Butler Welse Grain Company of Omaha and by W. H. Krechman, traffic manager, American Envelope Company, West Carrollton, Ohio, who said that if user charges drive waterways operators out of business, the operators "represent an anachronistic boondoggle left over as vestigial evidence of an earlier era in our history."

"Law of Jungle" Rules Transport

It does because so much carriage is unregulated, House Committee considering Cabinet Report is told—Group also hears that "nothing" is wrong with country's transportation

The House Interstate Commerce subcommittee, which is considering proposed legislation to implement recommendations of President Eisenhower's Cabinet Committee on Transport Policy, was told last week that the "law of the jungle" rules the transport field today, when 75% of the truck operators and 90% of the water carriers are unregulated.

The statement was part of a presentation made for the Federation for Railway Progress by its chairman,

James G. Lyne, who is also Editor of Railway Age. At a previous session of its hearings, the subcommittee was told by Chairman Arpaia of the Interstate Commerce Commission that "nothing" is wrong with America's transportation which is "the envy of the world."

Other presentations at hearing sessions subsequent to those reported in Railway Age Apr. 30, p. 10, included statements made on behalf of the Transportation Association of America, and National Industrial Traffic League and General Services Administration. The subcommittee authorized submission for the record of a statement by Holcombe Parkes, president of the Railway Progress Institute.

The subcommittee is headed by Representative Harris, Democrat of Arkansas, and the Cabinet Report bills it has under consideration are H.R. 6141 and H.R. 6142. Also involved in the hearing are other bills to end special rates to the government, to amend the Interstate Commerce Act's fourth section along lines recommended by the ICC, and to amend the act's Part IV as proposed by the Freight Forwarders Institute.

ICC Chairman Arpaia's direct presentation was a brief statement which summarized the commission's position as set out in the comprehensive presentations it made to interested congressional committees some time ago (Railway Age, Jan. 2, p. 7).

Generally, the commission is opposed to the Cabinet Committee's rate-freedom proposals, which the railroads regard as the major recom-

mendations because they would end the commission's fair-share-of-the-traffic approach in rate cases. Meanwhile, the commission favors generally those proposals which would extend its regulatory powers. These include proposals to sharpen definitions of private and contract carriage, and to repeal the bulk commodity exemption applicable to water carriers.

Chairman Arpaia's statement that "nothing" is wrong with America's transportation was made in response to a question from the committee. He went on to say that there is now "competition enough" in the business. He also warned that, in his opinion, the "same chaos that preceded regulation" would come again if the National Transportation Policy were amended to remove the call for prevention of "unfair and destructive competition."

In response to other questions, Mr. Arpaia said enactment of the rate-freedom proposals would result in making competition "so intense that government intervention would be necessary." He also said the country needs "dependability" in its transport system, and that "you can't set up carriers and knock them down like pins in a bowling alley."

Discussion of the Cabinet Committee's proposal to ease the way to establishment of volume or trainload rates raised a question as to whether there would then develop "trainload" forwarders. Chairman Arpaia thought that was a possibility.

Meanwhile, the chairman had argued, using specific examples, that the commission has not restrained the carriers "unduly." He said that only those competitive rates which look "destructive" are suspended for investigation; and he also said that

(Continued on p. 10)



Toward Better Railroading

Two of the 36 Pennsylvania employees from yards in the New York metropolitan area who recently completed a special nine-week training course as they received diplomas from Park M. Roeper (right), regional manager of the PRR's New York region. Attendance was voluntary, and the course dealt with such topics as freight loss and damage prevention, employee safety, classification of trains, and waybills. PRR officers served as instructors.

Loadings Up.—Loadings of revenue freight in the week ended April 28 totaled 778,398 cars, the Association of American Railroads announced on May 3. This was an increase of 14,961 cars, or 2.0%, compared with the previous week; an increase of 52,498 cars, or 7.2%, compared with the corresponding week last year; and an increase of 130,473 cars, or 20.1%, compared with the equivalent 1954 week.

Loadings of revenue freight for the week ended April 21 totaled 763,437 cars; the summary, compiled by the Car Service Division, AAR, follows:

REVENUE FREIGHT CAR LOADINGS For the week ended Saturday, April 21			
District	1956	1955	1954
Eastern	126,903	121,915	107,814
Allegheny	133,577	140,906	115,170
Poconchos	61,104	59,048	44,311
Southern	134,124	107,919	116,629
Northwestern	108,824	100,828	86,825
Central Western	119,815	113,557	102,853
Southwestern	39,090	57,179	32,380
Total Western Districts	287,729	271,564	242,258
Total All Roads	763,437	701,432	626,182
Commodities:			
Grain and grain products	50,336	45,741	42,269
Livestock	7,437	8,867	8,069
Coal	137,267	113,840	97,253
Coke	12,868	11,315	7,337
Forest Products	46,085	41,762	40,049
Ore	39,685	48,924	31,790
Merchandise incl. Miscellaneous	61,031	60,795	61,890
March 24	697,248	634,628	601,414
Cumulative total, 16 weeks	11,171,088	10,347,463	9,808,295

In Canada.—Carloadings for the seven-day period ended April 14 totaled 179,142 cars, compared with 76,464 cars for the previous seven-day period, according to the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada:		
April 14, 1956	79,142	35,270
April 14, 1955	61,512	30,019
Cumulative Totals:		
April 14, 1956	1,120,307	521,708
April 14, 1955	993,898	463,236

New Equipment

PASSENGER CARS

► **Argentina.**—Shortly will ask tenders for 300 diesel passenger cars, according to Foreign Commerce Weekly.

► **Good Business Ahead.**—"We think we're going to have a good four- or five- year cycle of passenger-car building, with this trend in the industry possibly getting under way near the end of 1956," Edward G. Budd, president of the Budd Company, said last week.

FREIGHT CARS

► **Grand Trunk Western.**—Ordered 500 cars costing \$4,285,000; ACF Industries will build 400 50-ton automobile box cars (delivery to begin in fourth quarter 1956), and Magor Car will build 100 70-ton flat cars (delivery to begin in first quarter 1957).

► **St. Louis Southwestern.**—Arranging for construction, in Pine Bluff, Ark., shops, of 50 60-ft, 70-ton flat cars with cast steel underframes; estimated cost \$551,000; delivery expected to begin next October, be completed by year-end.

LOCOMOTIVES

► **Argentina Wants 200 Diesels.**—Argentine Ministry of Transport has invited bids for supply of 200 diesel units, according to Foreign Commerce Weekly; specifications and drawings may be borrowed from Commercial Intelligence Division, Bureau of Foreign Commerce, Washington 25, D.C.

► **New Haven.**—Two Mec-hydro locomotives for this road's Train X will be delivered shortly, Baldwin-Lima-Hamilton has announced; NH units, although similar to New York Central locomotive just delivered, will be equipped to operate also in the NH's electrified territory.

► **Northern Pacific.**—Ordered 80 units, Electro-Motive; approximate cost \$13,300,000; included are five 4-unit freight locomotives, one 3-unit passenger locomotive, 40 road switchers and 17 switchers; purchase was authorized by directors last year (Railway Age, Nov. 28, 1955, p. 92).

► **Texas & Pacific.**—Ordered six GP-9 road switching units, Electro-Motive; delivery scheduled for April 1957.

New Facilities

► **Detroit, Toledo & Ironton.**—New construction projects include: new yard at Ford Park, Lima, Ohio, with associated facilities (\$1,030,000), and installation of flashers at various crossings (\$34,040); alter existing facilities and construct two new buildings, Jackson, Ohio (\$242,804); new yard tracks, Malinta, Ohio, (\$235,690); and install a two-way paging system in yards at Flat Rock, Mich. (\$26,100).

"Law of Jungle" Rules Transport

(Continued from p. 8)

"fair share of the traffic" is a phrase which originated "in the briefs of the carriers themselves."

Chairman Lyne of FRP supported the "general philosophy" of the Cabinet Committee recommendations without discussing specific provisions of bills before the subcommittee. His figures on the proportion of truckers and water carriers which are unregulated were taken from statements by Commissioner Mitchell of the ICC.

"If we believe in the survival of the fittest," Mr. Lyne said, "then we had better take the shackles and muzzles off the relatively small portion of the total jungle population which is thus handicapped, and give them a chance to defend themselves."

These statements of the FRP chairman were in reply to charges from opponents of the Cabinet Report that enactment of the rate-freedom proposals would result in "law of the jungle" rate warfare.

"All the legislation now before you would do," he explained, "would be to give the 25% of the trucks, the 10% of the water carriers and the railroads some small degree of the freedom in pricing their products that their competitors already enjoy."

The Cabinet Report legislation would enable the railroads to compete fairly for the traffic they are best equipped to handle, Mr. Lyne

said. "We recognize the superiority of other types of transportation for some traffic—and we believe that these other agencies of transportation should have the same freedom in competing for such traffic that we would favor for the railroads in competing for that part for which they are best adapted."

As long as any form of transportation is forced to allow its competitors to underprice it, "the transportation industry is bound to become stagnant," the FRP chairman stated.

In Britain and France, Mr. Lyne pointed out, a similar transportation problem was solved by drastic relaxation of railway regulation.

"In Britain, for example, a law was enacted in 1953 which almost completely exempts the railways from rate regulations—except as to their maximum rates," said Mr. Lyne. "When it comes to reducing rates in order to be competitive, the railways can go just as low as they want to. The British railways do not even have to make public the actual rates they charge. In France the solution to this problem has followed the same pattern as in Britain."

The Cabinet Report legislation, he added, would give American railroads "only a small fraction of the degree of freedom" granted to the British and French railways.

The Transportation Association of America was represented by its presi-

dent, George P. Baker, who is also professor of transportation at the Harvard Graduate School of Business Administration. He emphasized TAA's position that the Cabinet Committee recommendations should not come before Congress as a "package deal." The association thinks that action on "relatively uncontroversial" issues should not be delayed by lengthy consideration of "very controversial issues," he said.

Mr. Baker then proceeded to state TAA's positions on eight of the matters before the committee. It favors repeal of Section 22; requiring contract carriers to file, adhere to and publish rates they actually charge; giving the ICC authority to override state commissions to permit curtailment of unprofitable services; shortening from seven months to six months the maximum period for which the commission can suspend a tariff (Cabinet Committee recommends three months); tightening the Part IV provisions which exempt shipper associations from regulation as forwarders; modification of provisions relating to joint rail-water rates; and rewriting the rate-making rule to eliminate the requirement that the commission consider the effect of proposed rates on the movement of traffic.

The other TAA position was one of opposition to ending the exemption from regulation now enjoyed by water carriers of commodities in bulk.

The presentation made at last week's hearing by the NIT League related only to the bill (H.R. 6208) to amend the fourth section as recommended by the ICC. The amendment would permit railroads having circuitous routes to meet competition of direct routes by publishing rates involving fourth-section "departures" without prior approval of the commission. This would limit the commission's fourth-section power to the matter of relief over direct routes.

The NITL statement was made by a member of its committee on rate construction and tariffs, John R. Staley, who is also vice-president of the Quaker Oats Company. The league's position on other matters before the subcommittee will be set out in presentations at future sessions of the hearings.

The GSA presentation was in opposition to the bill, H.R. 525, to end special rates (so-called Section 22 quotations) to the government.



Railroads Featured in Cincinnati U. Program

"Panorama of Progress" exposition set the pace for the 50th anniversary of cooperative education at the University of Cincinnati. Three railroads, New York Central, Pennsylvania and Louisville & Nashville, were among 75 companies taking part in the celebration. The NYC's exhibit followed the

theme "planned progress through technical training." "Engineering keystones the progress of a railroad," was the slogan for the PRR's TrueTrain (piggy-back) exhibit (above). "Railroad engineering — yesterday and today," was the theme of the L&N's exhibit.

Higher Fares Will Yield \$27 Million

Eastern and western roads expect that result from increases which became effective May 1

Passenger revenues of eastern and western railroads are expected to rise about \$27 million a year as a result of the fare increases which became effective May 1.

The increases of 5% were approved by the Interstate Commerce Commission in a report made public April 30, the eve of the effective date of the tariffs. The case got expedited treatment at the hands of the commission, and little opposition to the increases was registered (Railway Age, April 9, p. 8, and April 30, p. 7).

Pullman Increase—Like increases have been published by Southern railroads in tariffs scheduled to become effective May 15. Meanwhile, higher charges for space

in Pullman cars also became effective May 1 when the ICC failed to suspend the Pullman Company tariffs involved. These amount to a general increase of 7½%, except for parlor-car space on Pennsylvania trains between New York and Washington, where the increase was 25%.

The eastern-western fare case was docketed as Ex Parte 202, and the commission's report noted that the increases in the eastern district and Pocahontas region raised basic one-way coach and first-class fares per mile from 3.375 and 4.5 cents to 3.544 and 4.725 cents, respectively. On most western roads, the per-mile rates rose from 2.5 cents and 3.5 cents to 2.625 and 3.675 cents, respectively. On some southwestern roads, the increases were from 2.75 and 3.85 cents to 2.8875 and 4.0425 cents, respectively.

There were also increases in minimum fares per trip, and in excess baggage charges. In the latter connection, however, the relationship between the excess baggage charges and the one-way first-class fares remains the same as before.

Intrastate Fares—The ICC's approval applied generally to interstate fares, but the commission also ordered like increases in intrastate fares in states having minimum-fare statutes. These states are Arkansas, Iowa, Michigan, Montana, Minnesota, Nebraska, North Dakota and Texas. The commission assumed jurisdiction over these intrastate fares several years ago when the rates went above the legal minimums. As to other states, tariffs proposing intrastate increases were filed when the interstate schedules were published.

The commission's general finding was that the increases will yield "substantial" revenue which railroads need, and to which they are "justly entitled." It cited statistical evidence indicating that the passenger-service deficit of eastern roads in 1955 was about \$238 million, while that of the western respondents was estimated at \$322 million.

Service—Noting that four of the five individuals who registered protests against the increase, complained

about matters of service, the commission went on to say:

"The quality of respondents' passenger service has considerably improved since we last looked into the matter, but there is still much to be done, and they will be expected to continue their efforts in that regard in connection with the increases approved herein."

Liability Limit Rules Get New Hearing Dates

June 5 has now been set by the Interstate Commerce Commission as the date for opening hearings at Washington on the general release-rate rules proposed by railroads and truckers. The Washington hearing had previously been scheduled for April 24.

Also set back are dates for subsequent hearings at other points, now scheduled as follows: Atlanta, June 12, 13 and 14; Dallas, June 19 and 20; Los Angeles, June 25, 26 and 27; Chicago, July 25.

The rules propose to limit carrier liability generally to \$3 per pound on articles in the classification, and to levy additional charges where declared values exceed that figure (Railway Age, Feb. 20, p. 9).

Southern Pacific Takes to the Air

The Southern Pacific has established, through a subsidiary, integrated truck-air freight service between Pacific Coast points and most U.S. cities.

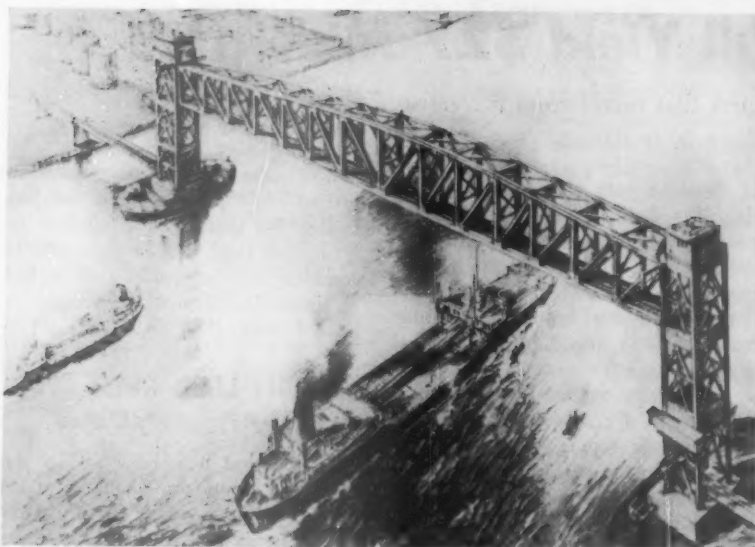
SP's Pacific Motor Trucking Company will carry inbound and outbound air cargo between its territory in California, Nevada and Oregon, and airports serving San Francisco, Los Angeles, Portland and Reno. The road has arranged for mutual solicitation of traffic with American Airlines, United Airlines and Slick Airways.

SP President D. J. Russell said negotiations with additional airlines are proceeding and added that the service may be extended throughout the entire SP system including truck-air freight service to Tucson, Ariz., and Phoenix, and El Paso, Tex. Southern Pacific Transport Co. serves Texas and Louisiana.



It Always Gets Easier

Something new in the way of telephone information service is being provided by the New York Central at Chicago's LaSalle Street Station. The special telephone, on the main floor of the station, enables a traveler to get instant train and fare information direct from the NYC information bureau. The new service is in addition to existing public information service on the station's second floor.



New B&O Lift Span Going Up for \$10.9 Million

Replacing an old swing bridge considered a hazard to navigation, vertical lift span, sketched above, will be erected by Baltimore & Ohio across Arthur Kill between Elizabeth, N.J., and Staten Island, N.Y. One of world's longest movable spans, new bridge's

lift is to be held in raised position to accommodate more frequent passage of vessels than trains. Army Corps of Engineers, sharing in \$10.9 million cost, will direct construction, which is expected to begin soon, first contracts already having been signed.

RRs Can Fight "Buy-and-Sell Truckers"

The commission modified its prior orders in Docket No. 17,000, Rate Structure Investigation, Part 7—Grain and Grain Products Within the Western District and for Export, on the ground that "reduced rates on these grains are essential if railroads in the western districts are to recapture lost traffic or even hold present tonnage."

Freedom—"Under the order entered herein," the commission stated, "the carriers will be free to file any rate or tariff change with respect to the coarse grains that they view as desirable. They should devise adjustments that will enable them to meet indicated competition, but will at the same time accord all shippers just rates and avoid undue prejudice."

"Published adjustments, if protested, will be considered by us under the regular investigation and suspension procedures of the act."

The principal coarse grains involved are corn, oats, barley and the various sorghum grains, used almost entirely as feed for livestock and poultry. The movement generally is from the north central states to the southwest.

At the time of the commission's prior order in 1934, transportation of the coarse grains was provided generally by the railroads, but transportation of the feeding grains by itinerant trucks has increased since 1935 "and is now mainly performed by such trucks," the commission found. The trucks move north from Texas with citrus fruit and vegetables and find a return load in the feeding grains needed in the southwest.

Buy-and-Sell—The truck operators buy the grain at farms or country elevators and sell it at destinations in the southwest, the commission noted, making their profit from a combination of the sale and the transportation charge.

The Department of Agriculture generally supported a lifting of the restrictions of the prior ICC orders, but argued that the adjustment contemplated by the railroads would not be effective "because it attempts to meet only the truck price of grain at destination and ignores the evidence that the farmer is receiving a better price from the itinerant merchant than that offered to him by the regular grain trade."

59,000 Cars Qualified For Fast Write Off

Orders for 59,000 freight cars of the present backlog were kept firm when the Office of Defense Mobilization qualified them for inclusion in the accelerated amortization program, the plan whereby tax relief is allowed to permit amortization of certified defense facilities over a five-year period.

The 59,000 cars were in excess of the amortization program's 436,000-car goal, but they were included in applications for certification filed before December 31, 1955, closing date for such applications.

ODM increased the goal from 436,000 cars to 495,000, thus taking in the 59,000, and then closed it again. It emphasized that "no further applications will be accepted."

NYC Setting Up Systemwide Employment Procedure

The New York Central is setting up this month the first standardized employment procedure ever carried out over the entire railroad, L. W. Horning, vice-president, personnel, has announced.

The new rulings will control employment at 3,000 hiring points along the road, and will apply whenever a new man is hired for any of the Central's 85,000 jobs.

The program is described in a 65-page booklet being distributed to supervisory personnel. The booklet reiterates the Central's long-standing policy of consideration to applicants regardless of race, creed, color and national origin.

Northwestern University Expands Transport Courses

Graduate programs in transportation will be launched this fall by the Northwestern University Transportation Center.

This development was made possible through financial support from all segments of the transportation industry, according to Fred G. Gurley, chairman of the center's advisory committee and president of the Santa Fe. "It is the center's first step," he said, "toward a comprehensive program of transportation education at all levels and in all fields."

Franklin M. Kreml, the center's di-



LIRR Shows the Way

Construction planning chief of Thailand Railways, Chaivat Utchoo (left), discusses American railroading techniques with Max Rheinboldt, office engineer, Long Island. After three-month stay on LIRR, he'll visit other roads under plan devised by International Cooperative Administration and Association of American Railroads.

rector, has announced that several \$2,500 graduate fellowships will be awarded on a competitive basis to applicants who qualify for graduate work at Northwestern in the school of commerce, or in the departments of civil engineering or economics in the graduate school.

RRs Would Equalize Atlantic Port Rates

Acting to remove the historic differences in railroad freight rates on export and import traffic, ten northeastern railroads have taken action to obtain equality on these rates on traffic moving through North Atlantic ports.

The carriers announced their intention to publish new tariffs that would have the effect of making export and import railroad freight rates on an equal basis with Baltimore, Norfolk and Newport News, on traffic moving to or from points principally west of Buffalo and Pittsburgh. Carriers involved in the rate adjustment program are the Boston & Maine; Lackawanna; Delaware & Hudson; Erie; Grand Trunk-Eastern Region; Lehigh Valley; New York Central; New Haven; New York, Ontario & Western; and the New York, Susquehanna & Western.

The port territory involved starts with Norfolk and Newport News on the south and extends north to and including Canadian ports. The proposed new rates would apply to rail routes extending roughly between this seaboard territory and the Mississippi river.

At the present time shipments transported by rail on import and export traffic through Baltimore, Norfolk and Newport News, are generally carried approximately three cents per hundred pounds lower than when they move through the ports of New York and Boston.

Tariffs soon will be filed with the Interstate Commerce Commission equalizing the Baltimore freight rates through all North Atlantic and Cana-

dian ports, New York and north. Action was taken because railroads serving these ports are said to be convinced they have lost a considerable volume of traffic because of the unequal rate situation.

The inland rate differential was set many years ago when ocean transportation charges to and from the ports of Philadelphia, Baltimore, Norfolk and Newport News were higher than to New York, Boston and Canadian ports. Since 1935, however, ocean freight charges to and from all eastern seaports have been placed at the same level. Thus there is no practical reason in continuing to penalize the northern ports with the burden of unequaled freight rates.

Export Coal Boom Looks Lasting

Current heavy activity in movement of export coal by rail to the seaboard looks like it will keep up for years to come. So declared President Walter J. Tuohy, president of the Chesapeake & Ohio—biggest originator and hauler of bituminous coal in the U.S.—at the annual meeting of his stockholders in Richmond, Va., April 26.

There is one important possible deterrent—widely fluctuating ocean rates. Coal operators, the three coal railroads serving Hampton Roads, and John L. Lewis have been meeting to discuss this problem. Commented Mr. Tuohy: "Who knows? The C&O might profitably and properly find itself in the ocean shipping business." [This will be nothing new for the road; until 1905 it owned the C&O Steamship Company, Ltd., which operated up to six steamers in international service out of Newport News, Va.—Ed.]

The fact that "the desirability of our entering into ocean shipping is being looked into . . . demonstrates our determination to protect existing revenues, if need be, by extraordinary measures," Mr. Tuohy added.

The C&O's chief executive reported that representatives of European countries buying U.S. coal are making contracts on a high volume basis and over a period of at least three to five years.

"Recently we had visit us in Cleveland a man who holds an important position in the British coal and ship-

ping trade. He pointed out that Great Britain's days as an exporter of coal are ended and that United States exports of coal to Europe now represent a permanent, steady market. In 1930, he pointed out, 75 million tons of coal were exported from England, 18 million tons going through his home port of Cardiff. Last year, he said, no coal went through Cardiff and 19 export loading points are now being dismantled in that port. Ships now being built in European yards, he adds, will be fitted for no other coal trade but to carry exports from the United States.

"Based on this steady export market, as well as on the continuously increasing needs of our own steel, electric utility, chemical and other industries, the coal operators on the C&O are opening up new mines and improving and enlarging old ones. These operators on our railroad are currently spending over \$30 million to increase their capacity to meet the growing demand for coal.

" . . . Never in the last three decades has the immediate and long-range outlook for bituminous coal been so good as it is today."

To a stockholder who asked whether the railroad considered Pittsburgh-Consolidated Coal Company's coal pipeline to Cleveland a threat, Mr. Tuohy replied that it will not compete directly with the C&O because the road ships practically no coal to the line's destination. More (Continued on p. 16)

Questions and Answers

Of current interest to the Transportation Department

Can a Rule 3 car be so loaded that while it does not go to its home district or a district contiguous thereto it will not be in violation of Car Service Rules ...

?

Yes—Maybe

One of the "quiz" respondents, who, incidentally, gave us a correct but not preferred solution (see the April 23 column), has raised the following interesting question which has been answered in the second paragraph below, by an officer of the Car Service Division.

"Under Rule 3-A-5 there is the phrase 'to a destination ... in the direction of home district.' Now if a car of IC ownership were loaded at Millinocket, Me., on the BAR and routed BAR, MEC, B&M, NH, L&HR, RDG, WM, P&WVA, NKP, TPW, and ATSF to Clovis, N. M., there would appear to be a violation of Rule 3-A-5. Clovis is not in a home district or a district contiguous thereto and also is beyond the home road. Yet Clovis is closer to an IC home district than is Millinocket. Would the distance principle apply here and bring this car within Car Service rules?"

"In my opinion the loading of the IC car from Millinocket to Clovis would be in accordance with the provisions of Car Service Rule 3 (A) (2), stating that Rule 3 cars may be loaded in the direction of the home road.

"One can always get into an argument as to what is meant by 'direction of the home road' and as to whether this means strictly in geographical direction from the loading point toward—but not beyond—the home road. My own thought has been that when the destination is closer to the home road rails than is the loading point, the provisions of this rule have been reasonably met and that continued loadings of the same sort will eventually get the car home or on a Rule 2 road where there will be little option but to load it to—or via—owner's rails.

"About the same argument applies as to Rule 3 (A) (5) where the rule says the car may be loaded 'to a destination within or in the direction

of the home district.' Here again my definition of 'in the direction' would not preclude loading the car beyond the home district if the destination were closer to home rails than is the loading point.

"In the instances cited, as I figure it the IC car is, at Millinocket, 1,218 miles from Indianapolis, the closest point on owner's rails. At Clovis it would be 657 miles from Shreveport, the closest point on owner's rails, or an advance of 561 miles toward owner's rails.

"In other words, it is my firm opinion that a violation of Car Service rules should not be charged on such a loading. This is, however, a personal opinion and it is possible submission of such an instance to the Committee on Car Service might upset it."

Car Service "Quiz" Answers

Below are the names of 15 more persons who sent in correct answers to the "quiz." This list supplements the one published in this column April 23. Where's your name?

- L. C. Aldrich, agent, St. Louis-San Francisco, Leon, Kan.
- J. W. Buffey, yard clerk, Erie, Croxton, N.J.
- W. F. Callicotte, Union Pacific, Laramie, Wyo.
- R. J. Carrico, car service agent, Car Service Div., Association of American Railroads, Washington, D.C.
- E. A. Conn, yard clerk, Erie, Croxton, N.J.
- H. Farley, Sr., yard clerk, Erie, Croxton, N.J.
- J. S. Fuller, car service agent, Car Service Div., Association of American Railroads, Chicago, Ill.
- N. M. Hickock, traffic manager, Western Paper Converting Co., Salem, Ore.
- J. B. Kiernan, yard master, Erie, Croxton, N.J.
- H. F. Lauber, chief clerk, Terminal Railroad Association, St. Louis, Mo.
- E. A. Lehmann, student employee, University of Minnesota, Minneapolis, Minn.
- T. Mooney, yard clerk, Erie, Croxton, N.J.
- John H. Schroeder, Chicago & Western Indiana, Chicago.
- Lt. C. J. Taylor, Fort Eustis, Va.
- H. Ulicki, yardmaster, Erie, Croxton, N.J.

CONDUCTED By G. C. RANDALL, district manager, Car Service Division (ret.), Association of American Railroads, this column runs in alternate weekly issues of this paper, and is devoted to authoritative answers to questions on transportation department matters. Questions on subjects concerning other departments will not be considered, unless they have a direct bearing on transportation functions. Readers are invited to submit questions, and, when so inclined, letters agreeing or disagreeing with our answers. Communications should be addressed to Question and Answer Editor, Railway Age, 30 Church Street, New York 7.



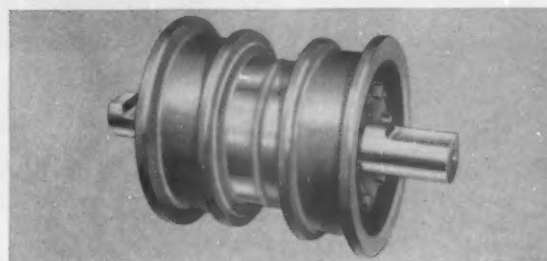
Do you believe one make of parts is as good as another?

Take track rollers. You can buy substitutes that look on the outside like Caterpillar originals. But a Cat-built track roller has deep hardened rims of forged steel. Forging keeps rims free from the accidental defects often found in castings. The roller shaft is one-piece and induction-hardened. The seals are self-aligning, of double-tanned leather to *really* keep lubricant in, water and dirt out. You're *sure* of extra wear, extra life —on the toughest jobs.

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(Continued from p. 13)

generally, while "to certain destinations and for certain limited users," pipelines might prove economical, the C&O's president feels that movement of coal for long distances by pipeline cannot compete with the cost advantage the C&O now enjoys in moving coal long distances.

Mr. Tuohy added that the coal company "could not have picked a better spot" for its experiment. "By some peculiarity of the rate structure," he said, the railroads' revenues

on the traffic threatened by the pipeline to Cleveland go over 2¢ a ton mile, while the C&O's average revenue on coal is only 7 mills.

UP Switches "City of Los Angeles" to All-Pullman

The "City of Los Angeles" and "Challenger," now operating as a combined train between Chicago and Los Angeles, will be separated into an all-coach and all-Pullman section June 2 (Railway Age, Apr. 8, p. 5).

Bad Order Cars At 8-Year Low

The present percentage of bad-order cars is the lowest since January 1, 1948, William T. Faricy, president of the Association of American Railroads, announced recently.

Railroads, he said, with only 4.1% of their freight cars awaiting or undergoing repairs, are within 1,700 cars of bringing the ratio of bad order cars down to the goal of 4% of ownership announced last November.

As a result of the program of repair and upgrading in recent months, the supply of serviceable freight cars is 23,550 more than it was a year ago. The increase, he emphasized, has been achieved in spite of the fact that in the past year more freight cars were scrapped than were built, with a decline in total ownership from 1,726,626 units to 1,696,544. This downward trend in ownership was reversed during the first quarter of 1956, when 14,650 cars were built and only 11,450 were scrapped.

Although the coming months are expected to see gains in total ownership and the number of serviceable cars available for shippers, depending upon availability of steel and other materials, there will not be enough cars to meet all demands during the seasons of heavy shipping, Mr. Faricy said.

Shortages are expected in virtually all types of service and in all sections of the country.

ICC Changes Three Rules of Practice

Changes in three of the Interstate Commerce Commission's rules of practice will become effective June 21.

Rule 15 will be changed to make it clear that a brief is subject to the 50-page rule, and to explain conditions under which printing by offset process is permitted. Rule 22 will be changed to provide that all petitions for leave to intervene must have certificates of service like those applicable to pleadings generally. Rule 101 will be changed to eliminate the present 60-day provision, and thus to provide a uniform period of 30 days for filing all petitions submitted under the rule.

MORE NEWS ON PAGE 70

superstructure . . . underframe . . . outer skin



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WEATHER AND CORROSION

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THE ELASTIC METALLIC COMPOUND

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ALUMINUM BASE SEALER



The virtues of "Alumilastic's" unusual sealing qualities which shine in the construction of Train-X are actually old stuff to car builders and railroad car men. This heavy, pure Albron® aluminum base compound has been doing a job since 1931.

Its tough, adhesive metallic skin and flexibility under severe temperature variations, weaving and vibration provide a secure and lasting seal for laps and joints of all kinds. It also prevents galvanic corrosion in joints of dissimilar metals.

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◀ Applying Alumilastic sealer to Train-X underframe cross-members prior to application of belly sheets.

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2-way RAILROAD RADIO
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⚡ **MAINTENANCE OF WAY**

⚡ **MATERIALS HANDLING**

⚡ **MAINTENANCE SHOPS**

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9
SPEED · EFFICIENCY · SAFETY

MOTOROLA mainline radio

moves more trains FASTER

Eight leading U.S. railroads have Motorola Mainline Systems totaling more than 1500 miles of radio equipped territory. Its reliable all-weather two-way radio performance maintains basic communications between trains, dispatchers, and wayside stations, improving service and reducing costs.



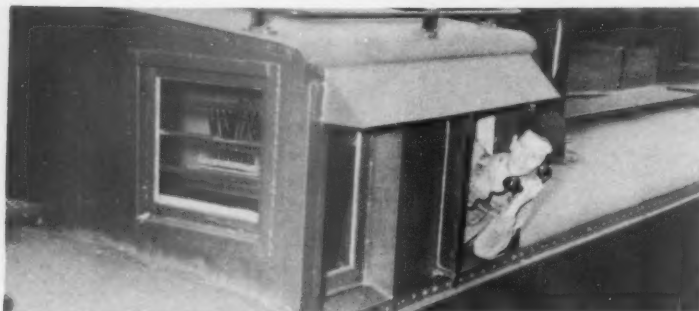
Motorola mainline radio permits dispatcher to talk to wayside operator for regular train order information or radio control. Key box and loudspeaker operation provide selection of wayside stations and modern dispatch line communication facilities.



Dispatcher can, in emergencies, reach the train on the road with a flick of his MOTOROLA switch, or routinely discuss train orders and schedules with wayside station operators.



Engineer in a Missouri Pacific locomotive cab talks via MOTOROLA to the conductor in the caboose, or to a wayside operator, or to other trains.



Conductor in the caboose has MOTOROLA contact with his locomotive engineer, wayside operators, or dispatcher.



LIST OF MOTOROLA MAINLINE RADIO USERS:

**SOUTHERN PACIFIC
BURLINGTON
ROCK ISLAND
MISSOURI PACIFIC
SEABOARD
CHICAGO & EASTERN ILLINOIS
SOUTHERN
MONON**

*58% of railroad radio installations are **MOTOROLA**

Yes, 58% of all railroad radio units installed in 1955 were Motorola—and the charts show this was also true in 1954 and 1953. The source of these statistics are the reports of the railroads themselves to Railway Age at the close of each year. In these voluntary reports, the customer indicates the types of service and the number of radio units installed the previous year. For 1955, 58% or practically six out of every ten units were Motorola.

Look over the following charts. The charts show that, as the number of licensees has increased, so has the percentage of Motorola users. Today, more than 94 railroads, using more than 6500 units are Motorola equipped.

The fact that Motorola is a superior product, designed to do a specific job, is just one reason why so many railroads so consistently specify Motorola.

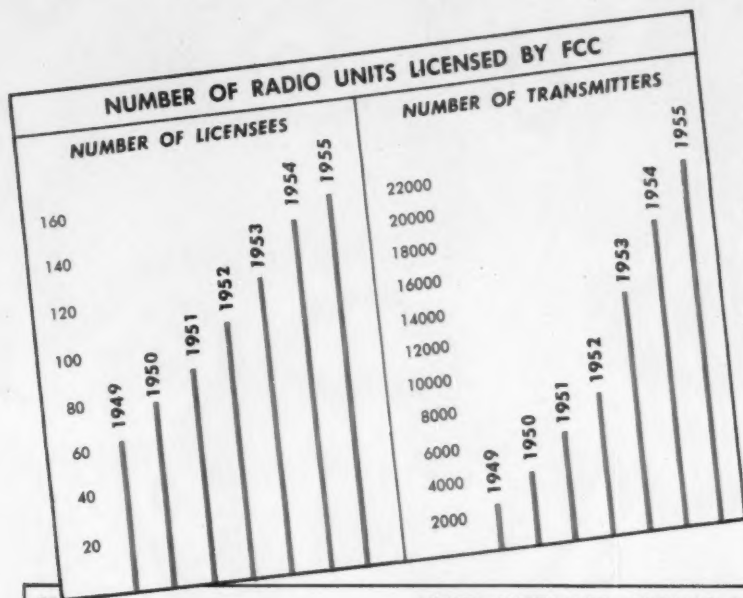
1. Interchangeable equipment, not only between engine, caboose and base station but—units manufactured today plug into racks manufactured in 1949 with no revisions required.

2. Motorola has the new "Standardized" Single Unit Railroad Package, using transistors in the receiver output circuits.

3. Motorola is the leading supplier of radio communications systems in all fields. At Motorola, radio is our only business.

4. Regardless of your two-way requirements, we have a product to fit your needs—a complete line.

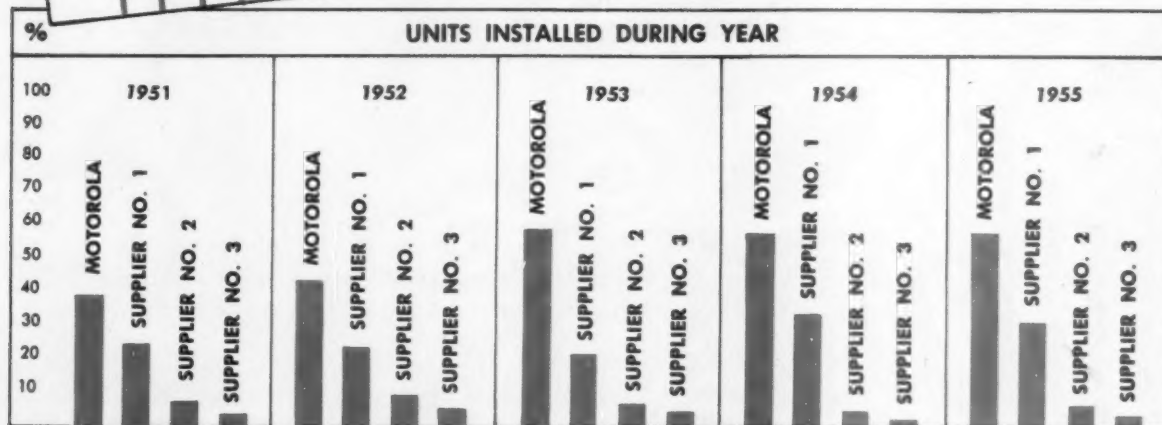
5. A special radio engineering group trained in railroading problems is available to serve you.



...and this is important. Motorola gives you nationwide service and repair part facilities, completely stocked, adequately manned and thoroughly prepared to back up the product all along the line.

LET US HELP YOU PLAN YOUR RADIO SYSTEM NOW!

*Figures compiled from statistics published in Railway Age.



MOTOROLA 2-WAY RAILROAD RADIO

MOTOROLA COMMUNICATIONS & ELECTRONICS, INC.
A SUBSIDIARY OF MOTOROLA, INC.
4301 AUGUSTA BOULEVARD • CHICAGO 31, ILLINOIS



Motorola consistently supplies more mobile and portable radio than all others.

Proof of acceptance, experience and quality.

The only COMPLETE radio communications service—
specialized engineering...product...customer
service...parts...installation...
maintenance...finance...lease.

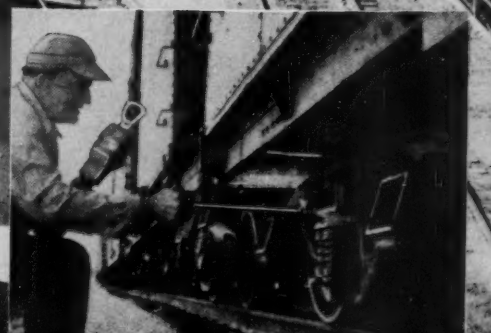
"The best costs you less—specify Motorola."



Yard and Terminal operations,

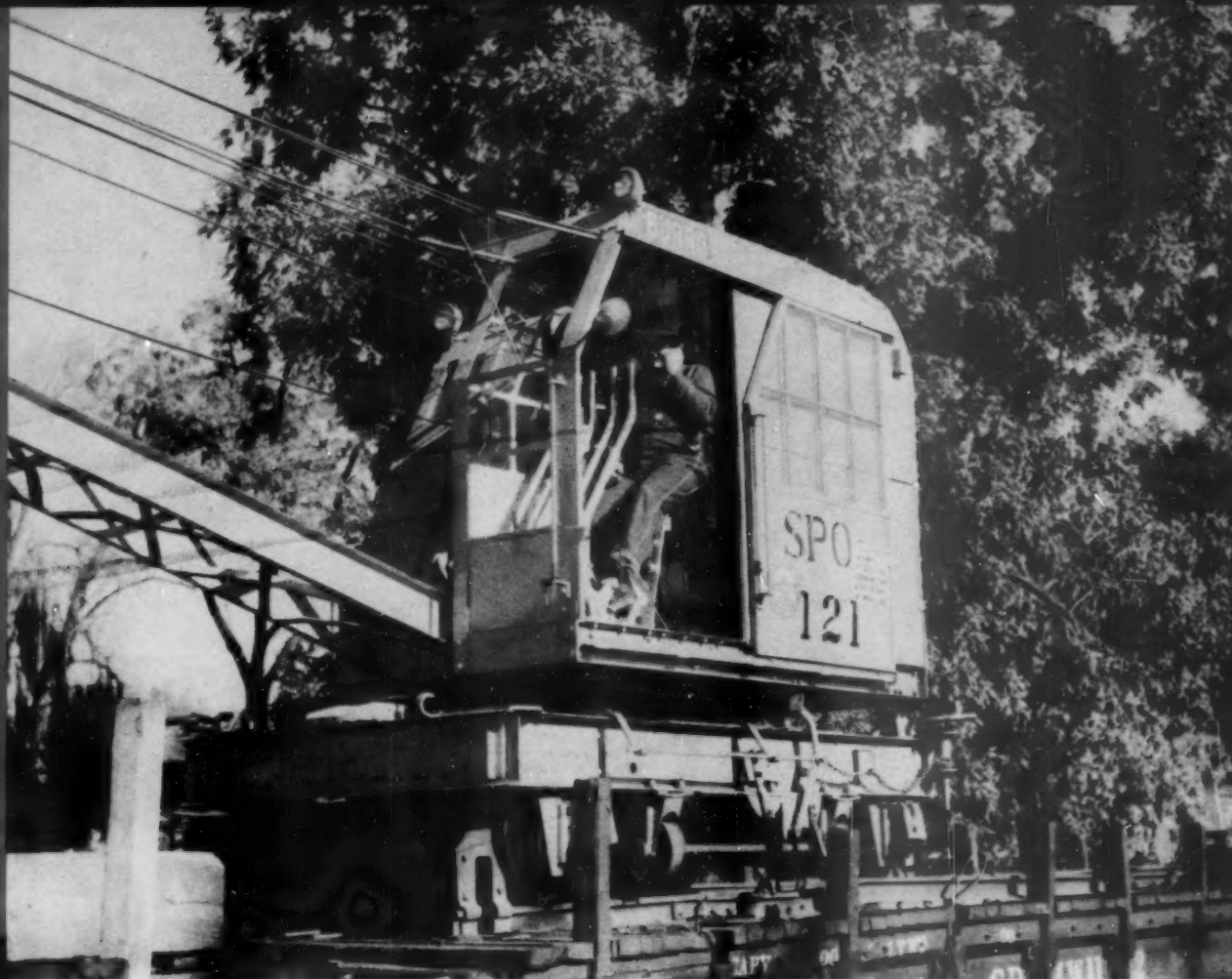
including switching, hump-ing, car checking, and car inspection, are speeded up and made more efficient and economical with

MOTOROLA

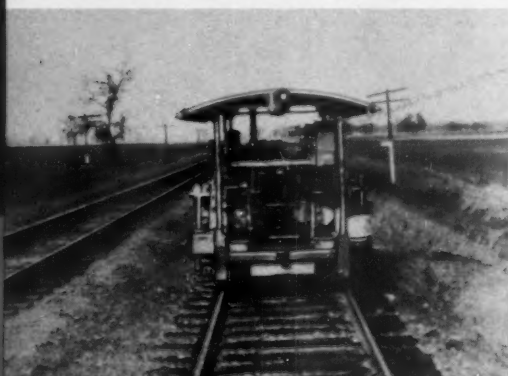


Above: A MOTOROLA equipped car inspector reports defective equipment immediately through his portable transmitter. Top: Switch engine crews working in the new Englewood Yard of the Southern Pacific Lines in Texas and Louisiana get instructions from the yardmaster instantly via MOTOROLA. Left below: MOTOROLA 2-way radio installation in yardmaster's office keeps cars moving on the classification tracks, saves valuable time. Right below: Car checker calls numbers in to yard office as fast as the cars go by. His MOTOROLA Handie Talkie® Radiophone speeds the train's departure.





Top: Southern Pacific crane operator's MOTOROLA installation inside cab enables him to contact flagman equipped with special tripod-mounted radio, and foreman contacts approaching trains. Center: SP radio-equipped tamper can call wayside stations for train information, or communicate with foreman or flagmen in addition to approaching train. Bottom: Radio equipment on motor cars increases safety of workers through contact with closest wayside operator.



Maintenance/Way MOVES FASTER WITH **MOTOROLA**

Motorola 2-way radio is available for co-ordinating operations of field forces and track crews, and communicating with flagmen, field supervisors, and engineering headquarters.

Both portables and railroad units installed in cars, trucks, work equipment, and field offices pay big dividends for...

- mechanized section crews
- laying welded rail
- work trains
- snow removal
- new construction
- track resurfacing crews

materials handling

operations find

MOTOROLA

2-way radio an important
time saver.



maintenance shops

have many
uses for

MOTOROLA

2-way radio in performing
their car and locomotive
repair jobs.



Top left: Motorola Handie Talkie Radiophone in stores department stock room makes instant contact with office. Above: Fork lift truck operator talks with shop foreman while handling heavy parts.

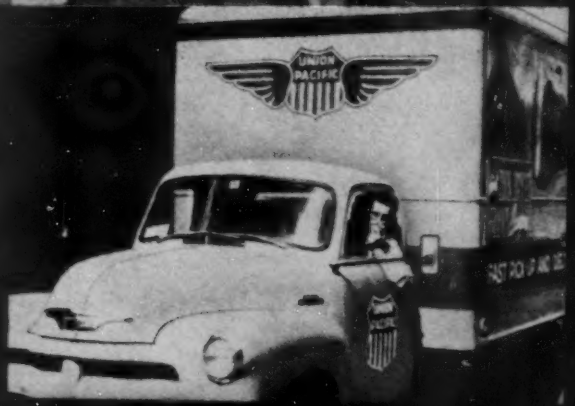


Center, above: Operator of platform truck communicates with foreman. Left, above: Foreman can communicate with truck operators in various parts of shop. Right, above: Portable Radiophones enable crew on floor to communicate with crane operator in control booth near ceiling as locomotive is hoisted. Right: Hoist truck is equipped with radio on control panel so operator can consult shop foreman as heavy parts are moved.



Pick-up and Delivery Service

uses **MOTOROLA** 2-way radio for dispatching and routing UP trucks handling l.c.l. freight, saving back-tracking and extra runs. Improve customer service.



Giant in the Paul Bunyan Country...

The Great Northern Railway uses STANDARD Diesel Lubricant

Paul Bunyan would have enjoyed riding the Great Northern, for it, too, is a giant of the Northwest. With its 8,300 miles of track and its 587 diesel power units, the Great Northern is well equipped to serve the vast, productive, scenic territory between St. Paul and the Pacific Northwest.

Great Northern diesels that power trains which haul grain, iron ore, oil, lumber and other products of this rich area, use **STANDARD Diesel Lubricating Oil**. Heavy loads, the use of economy fuels and maximum operating schedules put heavy stress on the oil. **STANDARD Diesel Lubricant** stands up to this kind of service with plenty to spare.

Find out how **STANDARD Diesel Lubricant** can serve you. Write Railway Sales Department, Standard Oil Company, 910 South Michigan Avenue, Chicago 80, Illinois.



STANDARD OIL COMPANY
(Indiana)



All Aboard for Train X

The New Train
The Nation's Leading Carbuilder
Has Built... about to
enter service on the New York Central System.



With this all-coach version, Train X provides travelers with comfortable roomy accommodations. While having an extremely low silhouette, Train X car interiors are comparable in spaciousness with conventional coaches. Train X carries 392 passengers with the safety and comfort of Pullman-Standard's exclusive roll-compensating Air-Glide Ride suspension.



Passengers can really enjoy the scenery through big picture windows, in climate controlled comfort. Acoustical design reduces noise and vibration levels to provide an extremely quiet ride. Easy-to-reach baggage racks keep luggage near at hand. And contoured seats adjust for passenger comfort. Car interiors, tastefully decorated, make wide use of plastics for permanent newness, ease of maintenance and passenger acceptance.

WORLD'S LARGEST MANUFACTURER OF PASSENGER AND FREIGHT CARS

PULLMAN - STANDARD

CAR MANUFACTURING COMPANY

SUBSIDIARY OF PULLMAN INCORPORATED

79 EAST ADAMS STREET, CHICAGO 3, ILLINOIS

BIRMINGHAM, PITTSBURGH, NEW YORK, SAN FRANCISCO, WASHINGTON

New York Central Locomotives Get 63% Horsepower Boost With G-E Rebuild Service

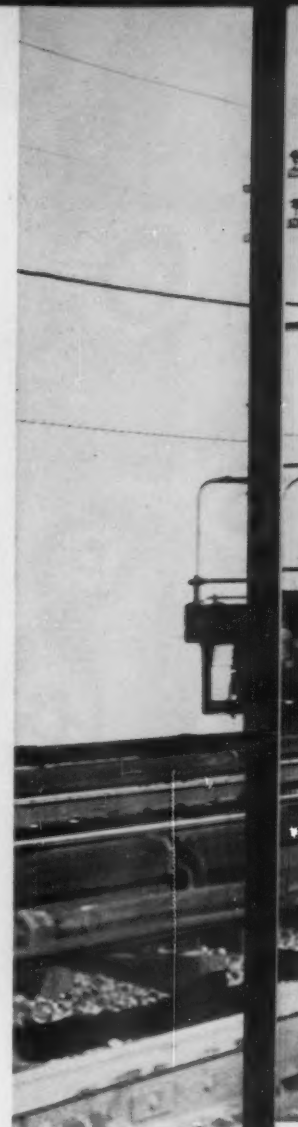
Twenty electric locomotives, each rating 4250 HP hourly, are now hauling crack passenger trains on the New York Central mainline between Harmon, N. Y. and Grand Central Station. They have replaced between 30 and 40 other New York Central units.

The interesting fact about these locomotives is that two years ago they rated only 2600 HP, and had been retired from service when the Cleveland Union Terminal discontinued electrification. Since that time, General Electric, at the direction of the New York Central, has done one of the most complete electric-locomotive modernization jobs on record.

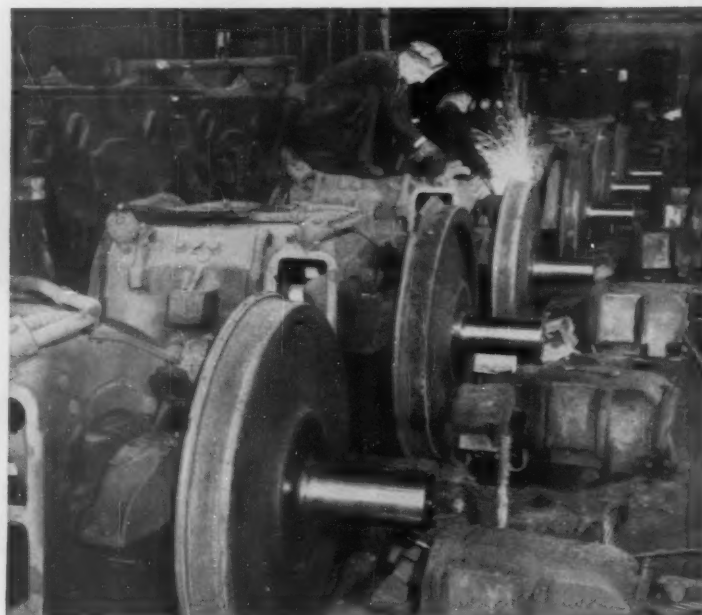
As one result, these units were given a 63% horsepower boost, but even more important, the New York Central now has a fleet of electric locomotives, in every way the functional equivalent of new motive power, at only a fraction of the cost of equivalent new units. General Electric Company, Locomotive & Car Equipment Department, Erie, Pa. 128-25

Progress Is Our Most Important Product

GENERAL  ELECTRIC



DESIGNED ORIGINALLY FOR 3000 VOLT D-C OPERATION, units were given new modern 600 volt d-c electrical system. Here, old apparatus is stripped from cab at start of modernization.



OLD MOTORS AND AXLES, WITH TWIN SETS OF GEARS, were scrapped. Wheels were reclaimed and mounted on axles designed to accommodate G-E motors with single gears. Journal boxes were reconditioned.



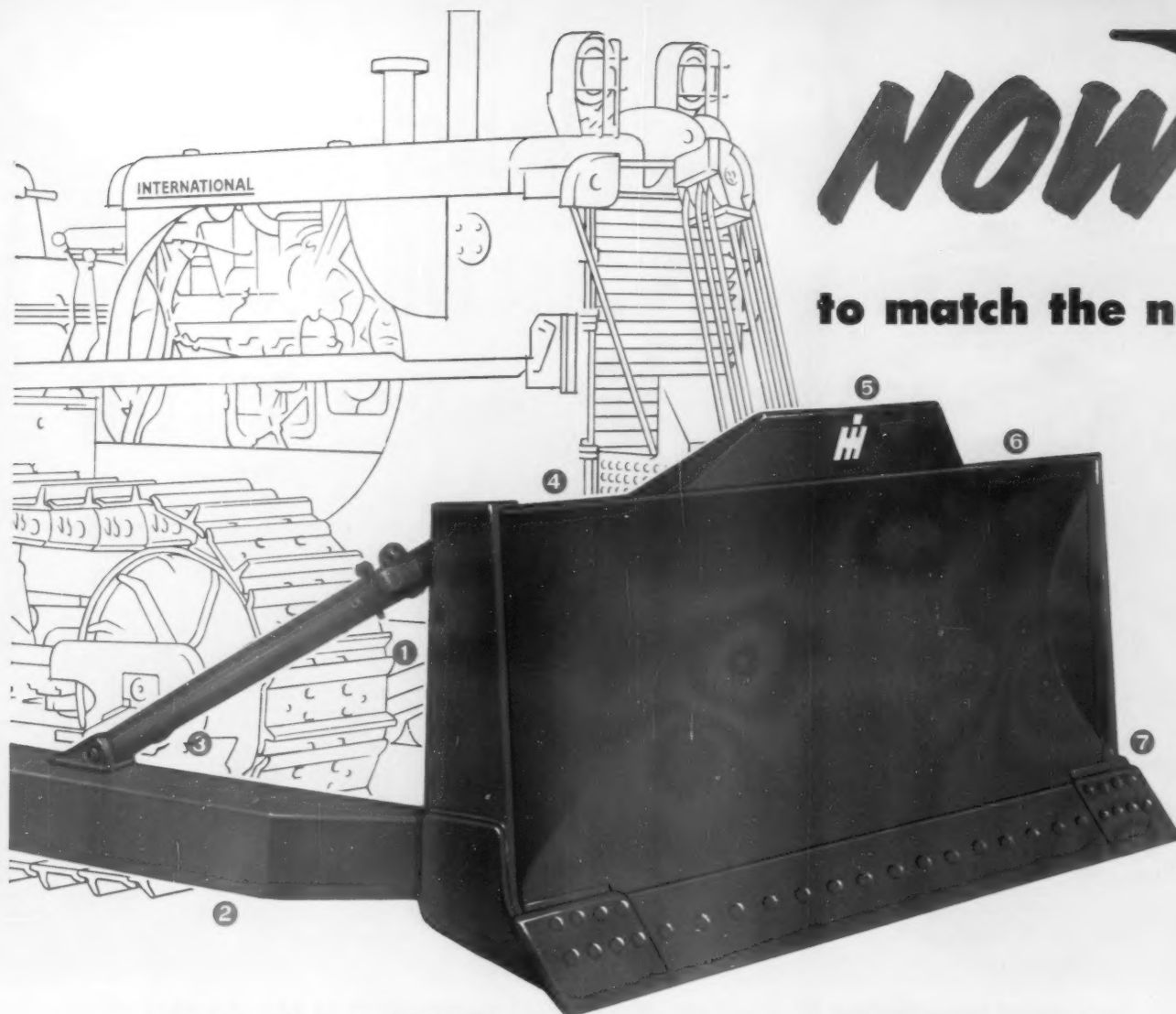
BACK ON THE LINE—HERE'S ONE OF 20 ELECTRICS AFTER COMPLETE MODERNIZATION AT G.E.'S ERIE, PA. PLANT.



USING MODERN COMPONENTS AND UNIT CONSTRUCTION, G-E engineers designed new control to handle 63% more HP in 23% less space. Here, hatch covers are lowered into place after equipment is installed.



UNITS PASS FINAL HI-POTENTIAL TEST. For facts on rebuild for your locomotive, contact G-E Apparatus Sales Office, or write Section 128-25, Locomotive & Car Equipment, Erie, Pa.



- ① Side plates are of abrasion resistant high strength steel, securely fused to moldboard and box sections by low-hydrogen welding. They prevent load spillage, allow you to carry larger loads. Standard on all International bulldozer blades.
- ② Push arms are sturdily constructed of box sections. Side plates are mill-rolled with integral back-up bars to support top and bottom plates. Machine welding guarantees uniformity of weld.
- ③ Headless pins, locked by eye bolts, secure struts to blade. For removal, pins can be driven out in either direction. On hydraulic blades, all control linkage is connected to the blade through self-aligning bearings.
- ④ Entire perimeter of blade is backed by heavy box channels solidly fused to moldboard. With this type of construction

moldboard, box channels, and welds flex freely to prevent weld failure.

- ⑤ Spillboard is wide and high to prevent spillage over top of blade. Note that it is curved to match the contour of the moldboard, thus aiding boilling action. Width of moldboard allows you to carry full load for which the blade was intended.
- ⑥ Moldboard is formed from a single sheet of low-alloy, high-strength steel. International blade is shaped to perfect curvature in a special forming machine to assure uniform strength and stress resistance over entire area.
- ⑦ Shear bars welded to moldboard support end bits and relieve stress on end bit bolts. Lower edge of end plate is reinforced by wear plate to add strength at corners, increase wear resistance.

New blades designed from "ground" up

To make full use of the greater work capacity of the new Bonus-Powered International crawler tractors, we now offer a complete line of newly designed blades matched to tractor power.

These new blades are rigidly supported around the edges by box sections to give the blade strength but also permit the moldboard to "breathe" under load stresses. New automatic welding processes guarantee that the welds in International blades will hold up under *any kind of job conditions*.

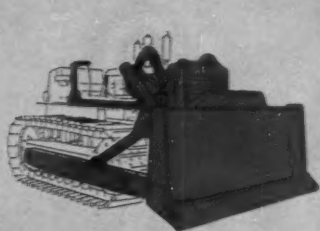
International blades will last far longer and give you far less trouble than any others you have ever hung on any tractor. When you inquire about the new line of Bonus-Powered Inter-

national crawler tractors, ask your International Industrial Power Distributor for all the facts about the new line of matching blades. See for yourself that they are the best designed, best constructed on the market.

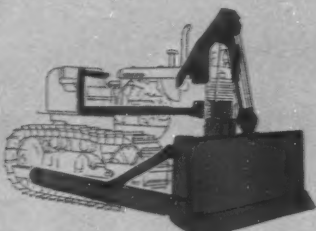
Write For New Blade Literature: An illustrated specification list of the 228 attachments available for International crawler tractors is just off the presses. For your free copy of Mailing Folder CR-492-F, write Consumer Relations Department, International Harvester Company, 180 North Michigan Avenue, Chicago 1, Illinois. No obligation, of course.

.42 new blades

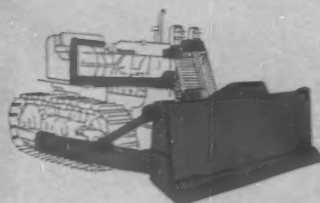
Bonus-Powered International crawlers



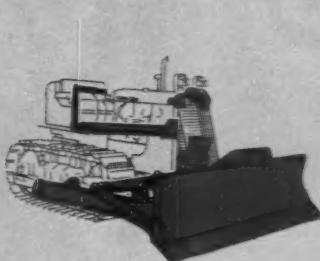
Direct Lift Hydraulic Bulldozer
Operates off front-mounted, gear-driven pump which gives fast blade action. Self-aligning bearings prevent binding of linkage.



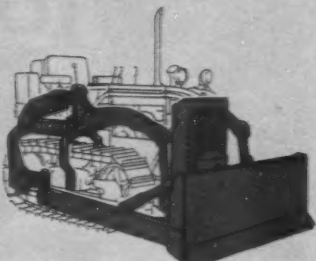
High-Gantry Cable Bulldozer
Operates off either front or rear-mounted International cable control unit. Available for TD-24, TD-18, and TD-14 tractors.



Low-Gantry Cable Bulldozer
Operates off either front or rear-mounted International cable control units. Available for TD-24, TD-18, and TD-14 tractors.



Hydraulic or Cable Bullgrader
Operates off high or low gantry, front or rear cable controls on TD-24, TD-18, and TD-14 tractors. Hydraulic bullgrader also for TD-9, TD-6, and T-6 tractors.



Track Frame Mounted Bulldozer—Distributes the load evenly over the length of the tracks. Available only for TD-9, TD-6, and T-6 tractors. Bullgrader also available.



International Drott "4-in-1"
Newest of International Drott loaders. Combines Skid-Shovel, Bullclam, clamshell, and bulldozer in one unit. Available for TD-14, TD-9, and TD-6 tractors.



INTERNATIONAL
HARVESTER

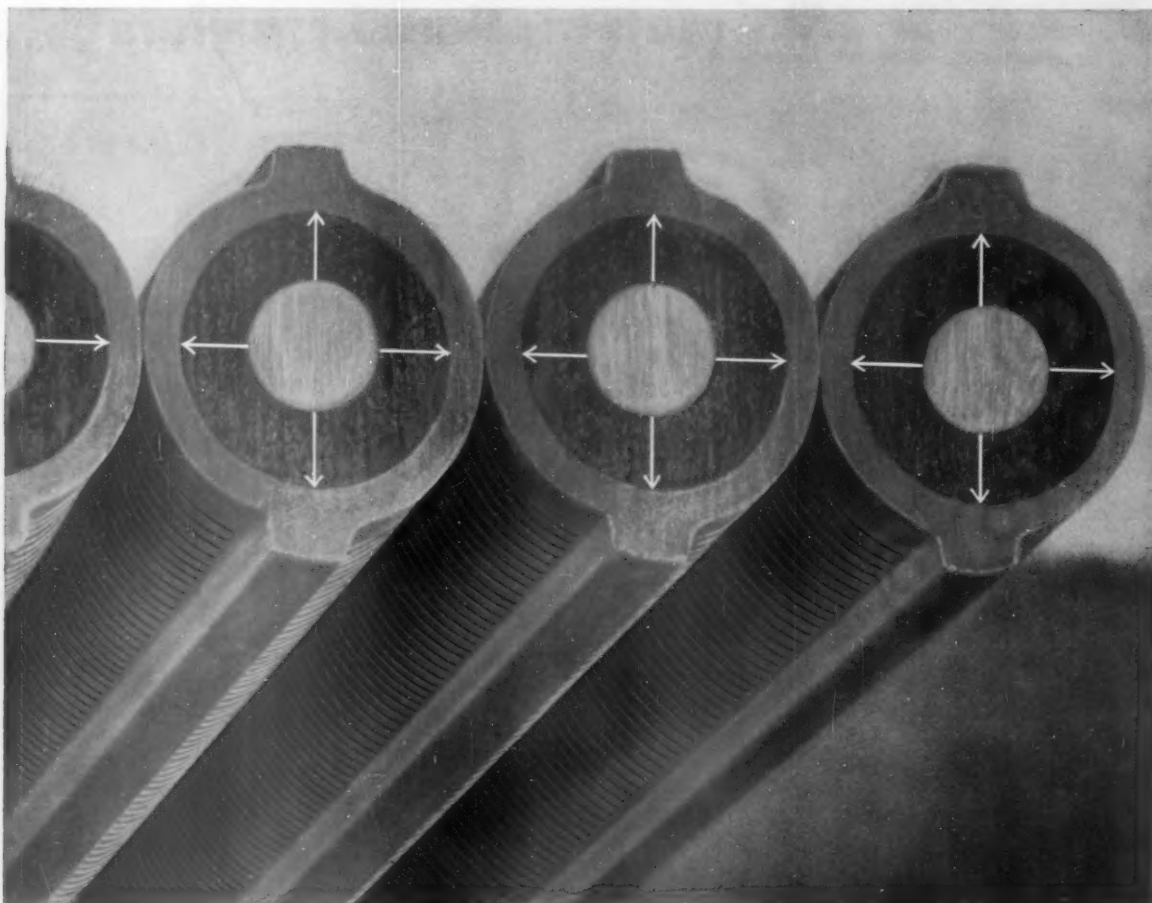
International Industrial Power

189 W. MICHIGAN AVENUE—CHICAGO 90, ILLINOIS

A COMPLETE POWER PACKAGE INCLUDING: Crawler, Wheel, and Pipe-Boom Tractors... Self-Propelled Scrapers and Bottom-Dumps... Tractor and Rubber-Tired Loaders... Diesel and Carbureted Engines

EXIDE-IRONCLAD BATTERIES

For railway car lighting and air conditioning



Power tubes expand without shedding — preserve battery life

BATTERY FOR RAILWAY CAR LIGHTING AND AIR CONDITIONING. Model EHL. Write for Bulletin No. 5168.



Every time you discharge a storage battery, the active material on the positive plates expands. But the plate grids don't expand. This is basic.

On most batteries, the expanding active material tends to shear off from the nonexpanding grid every time the action takes place. But this can't happen in the Exide-Ironclad Battery. The reason is simple.

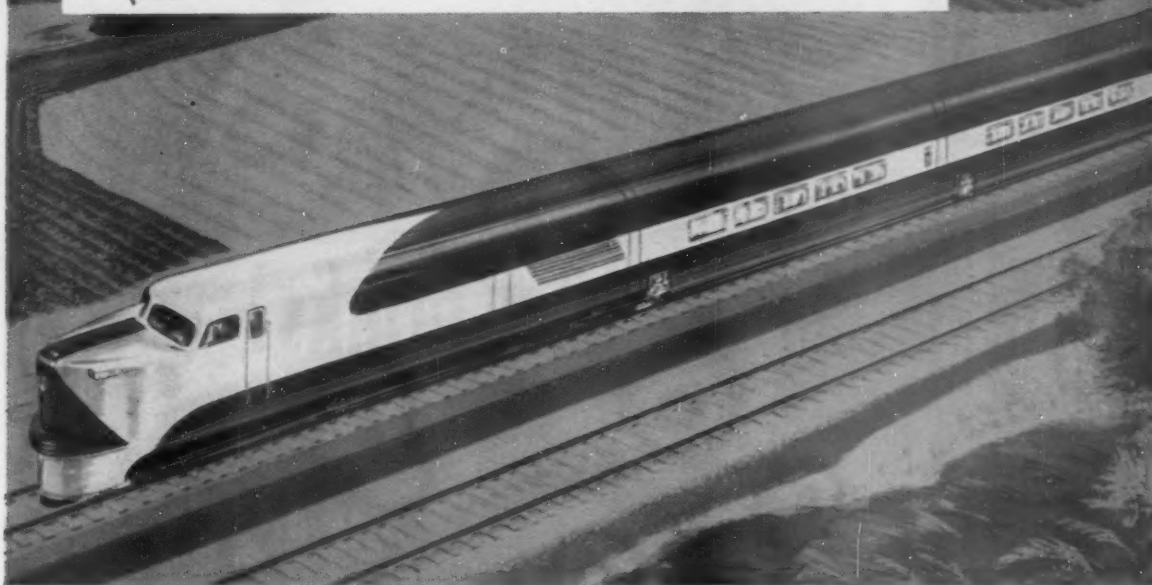
Active material is formed concentrically around the spinelike grid and held inside the plastic tubes. Expansion is predominantly in an outward direction—hence no shearing. Active material remains firmly locked to the underlying grid structure. And the flexible plastic tubes yield and take up as needed.

This extra protection against shedding of active material is only one of the many reasons for the long life of Exide-Ironclad Batteries. When you order heavy duty batteries, or the equipment requiring them, be sure to specify Exide-Ironclad. Write for detailed bulletin. Exide Industrial Division, The Electric Storage Battery Company, Philadelphia 2, Pa.

Exide®

Nothing rides so safe, so soft, so smooth as **train X**

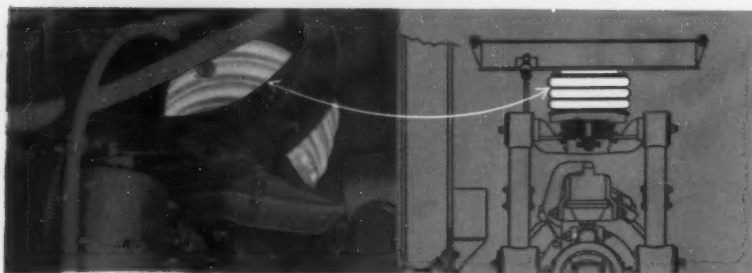
It rides on air
BECAUSE IT RIDES ON
Airide by **Firestone**



FIRESTONE has imprisoned the softest of all things — air. And created Airide — to provide a new high in passenger comfort and safety.

The Airide Spring, as used in Train X, is a suspension arrangement, based on Firestone's unique, self-leveling air springs. As shown below, these springs consist of special gum-dipped, nylon cord bellows, or convolutions, each shaped like an automobile tire placed on its side. The springs are specially constructed to withstand the effects of constant, maximum flexing.

Airide Springs are connected to air reservoirs by means of special valves which automatically maintain a constant floor level, regardless of uneven loading. Thus, they give the same comfortable ride, whether the train is fully or partially loaded. Train X *leans* into a curve, as you would if you were walking, cycling, flying, etc. It is self-banking. By means of Airide Springs by Firestone, Train X provides a buoyantly comfortable, shock-free ride. Passengers really *ride on air*. This is another major contribution to industry by Firestone Techni-Service.



ADVANTAGES OF AIRIDE SPRINGS

- Better comfort and load cushioning performance.
- Variable spring rate.
- Constant frequency.
- Low noise transmissibility.
- Minimum inherent frictional resistance.
- Long life. • Light weight.
- Constant deck height.
- Low cost. • Low maintenance.

Airide® by **Firestone**

For complete information, call or write: **FIRESTONE INDUSTRIAL PRODUCTS COMPANY**

A Division of the Firestone Tire & Rubber Company, 1200 Firestone Parkway, Akron 17, Ohio



Published in the interest of the Soft Drink Canners Association and the canning industry.

No headaches in these drinks!

Eliminate the hazard of broken bottles in your plant by providing your employees the safety and convenience of canned soft drinks.

Call your soft drink supplier and learn the many advantages of dispensing drinks the modern way—in cans.



Above are illustrated two of the modern cans for soft drinks, now available for in-plant use.



THE YOUNGSTOWN SHEET AND TUBE COMPANY

Manufacturers of Carbon, Alloy and Yelow Steel

General Offices Youngstown, Ohio District Sales Offices in Principal Cities.

SHEETS - STRIP - PLATES - STANDARD PIPE - LINE PIPE - OIL COUNTRY TUBULAR GOODS - CONDUIT AND EMT - MECHANICAL TUBING - COLD FINISHED BARS - HOT ROLLED BARS - WIRE - HOT ROLLED RODS - COKE TIN PLATE - ELECTROLYTIC TIN PLATE - BLACK PLATE - RAILROAD TRACK SPIKES - MINE ROOF BOLTS



TRAIN "X"

Back of this dramatic advance in railway passenger equipment built by Pullman-Standard is the creative engineering that makes a revolutionary concept a reality. The New York Air Brake Company is proud to have designed and built the "LWE" Brake System specifically selected for these famous trains.

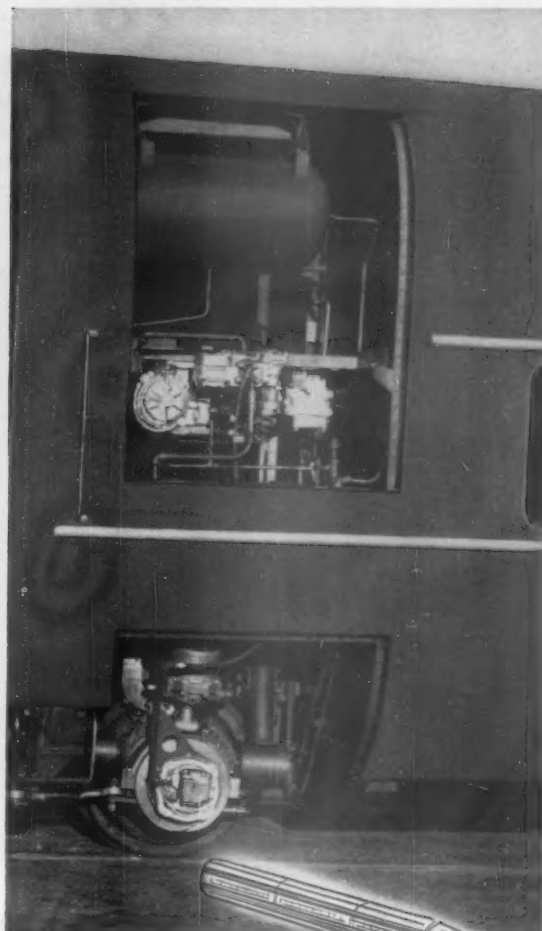
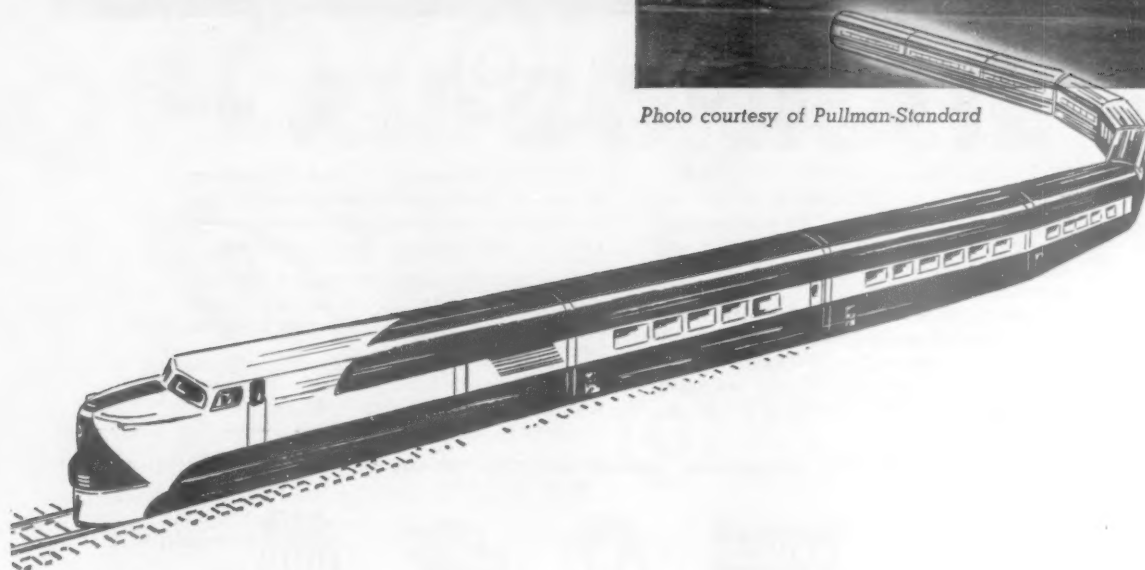


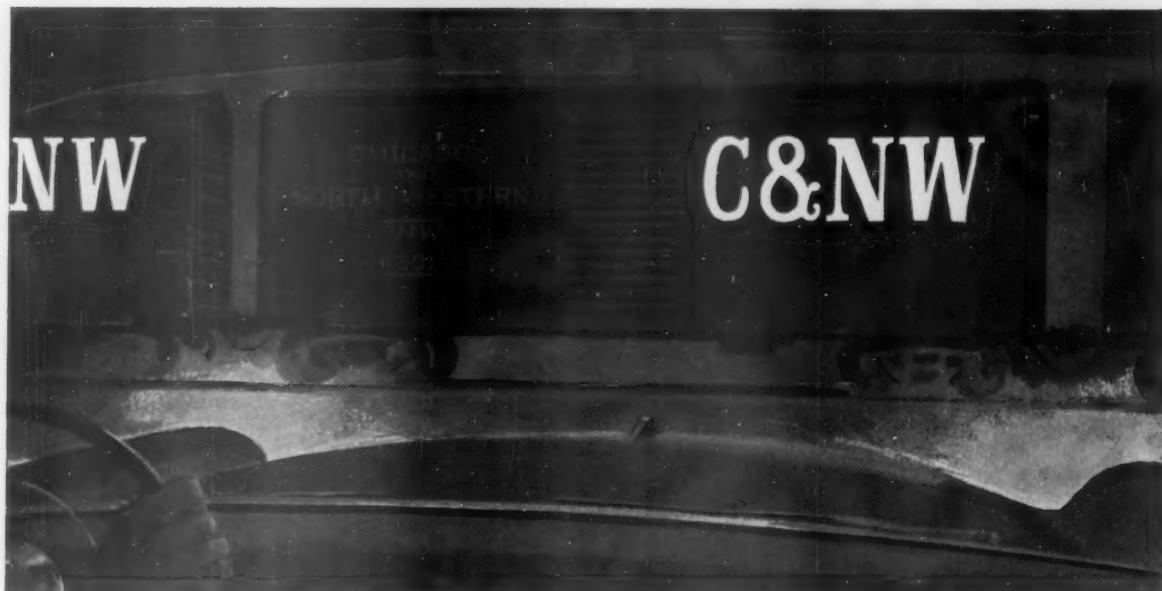
Photo courtesy of Pullman-Standard



THE NEW YORK AIR BRAKE COMPANY
230 PARK AVENUE • NEW YORK 17, N. Y.



1575 new C & NW cars
 reflectorized with **SCOTCHLITE**
REFLECTIVE SHEETING



*Cars identified at night as well as day...
 for 'round-the-clock advertising and safety, too!*

Vivid 4-foot letters of SCOTCHLITE Reflective Sheeting give 1575 C&NW freight cars a new look to be proud of! By night as well as by day, these striking markings sell C&NW name, service and safety with unmatched brilliance.

Reflectorization of your rolling stock can put 24-hour advertising on the road for you. Car manufacturers such as Pullman-Standard (builders of the new C&NW cars) can apply SCOTCHLITE Reflective Sheeting for letters,

trademarks, delineators . . . and car numbers to ease and speed yard identification. Or you can brighten your cars in your own shops with colorful, easy-to-apply, durable markings.

Send today for details on the new SCOTCHLITE Reflective Sheeting car signing system . . . put advertising *and* safety to work for you *soon*.

Write Minnesota Mining and Manufacturing Co., Dept FQ-56, St. Paul 6, Minn.

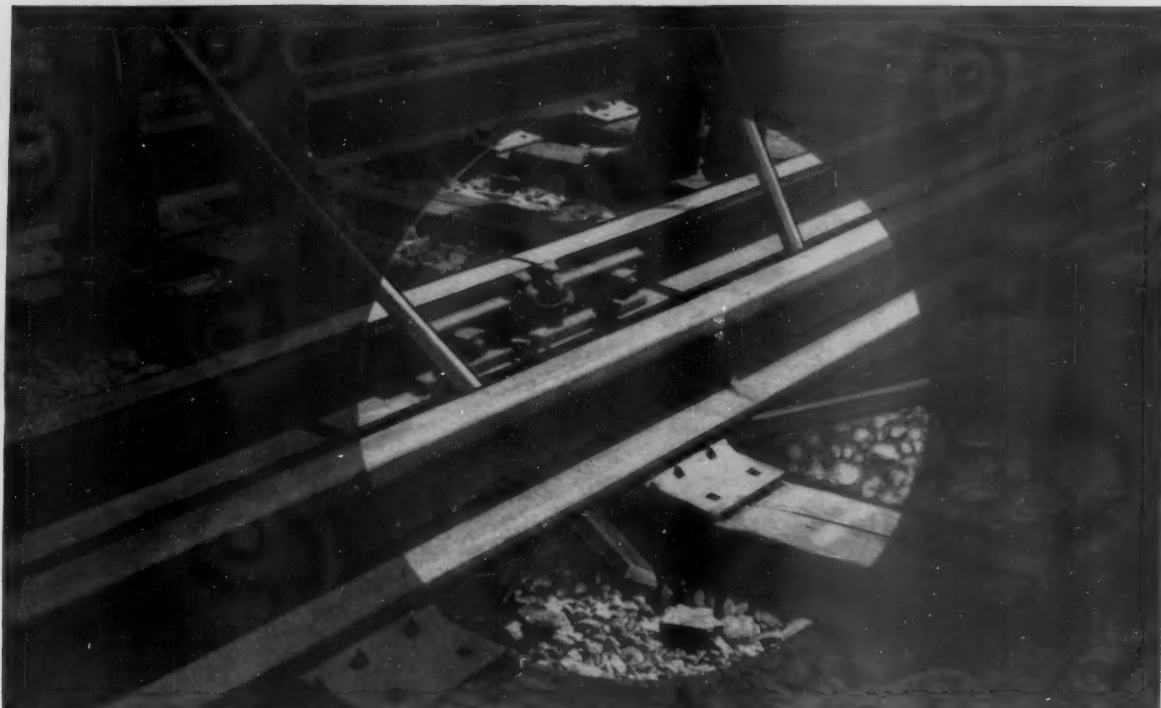
AMONG THE LEADING RAILROADS USING SCOTCHLITE ON ROLLING STOCK
REFLECTIVE SHEETING



REG. U. S. PAT. OFF.
SCOTCHLITE
BRAND
REFLECTIVE SHEETING



The terms "Scotchlite" and "Flat-Top" are registered trademarks of Minnesota Mining and Mfg. Co., St. Paul 6, Minn. General Export: 99 Park Ave., New York 16, N. Y. In Canada: P. O. Box 757, London, Ont.



Year after year, mile after mile conventional rail is being replaced by trouble-free, continuous rail.

Longer rail life at LESS COST WITH **"RIBBONRAIL"** SERVICE

Leading railroads throughout the nation are eliminating the expense of assembling and maintaining rail joints. Here are some of the savings now possible with LINDE'S RIBBONRAIL SERVICE.


1. Reduces Overall Maintenance. There are no angle bars, bolts, nutlocks, and copper bonds to install or replace. Maintenance on rolling stock is less too. Wear and tear on motor housings, car wheels, axles, and bearings is substantially cut down.

2. Increases Track Life. The smooth continuous

bond does away with battered rail ends . . . and trouble from loose, out-of-line, or worn rail joints is eliminated.

3. Improves Rail Riding Quality. By reducing the operating vibration, continuous rail decreases spillage, and vastly improves riding comfort.

LOOK TO "LINDE" . . . the leader in continuous rail welding, and plan your RIBBONRAIL SERVICE program now. Call or write the Railroad Department of LINDE AIR PRODUCTS COMPANY.

RAILROAD DEPARTMENT
Linde Air Products Company
A Division of Union Carbide and Carbon Corporation
30 East 42nd Street  New York 17, N. Y.
Offices in Other Principal Cities
In Canada: LINDE AIR PRODUCTS COMPANY
Division of Union Carbide Canada Limited, Toronto

The terms "Linde" and "Oxweld" are trade-marks, and "Ribbonrail" is a service-mark of Union Carbide and Carbon Corporation.

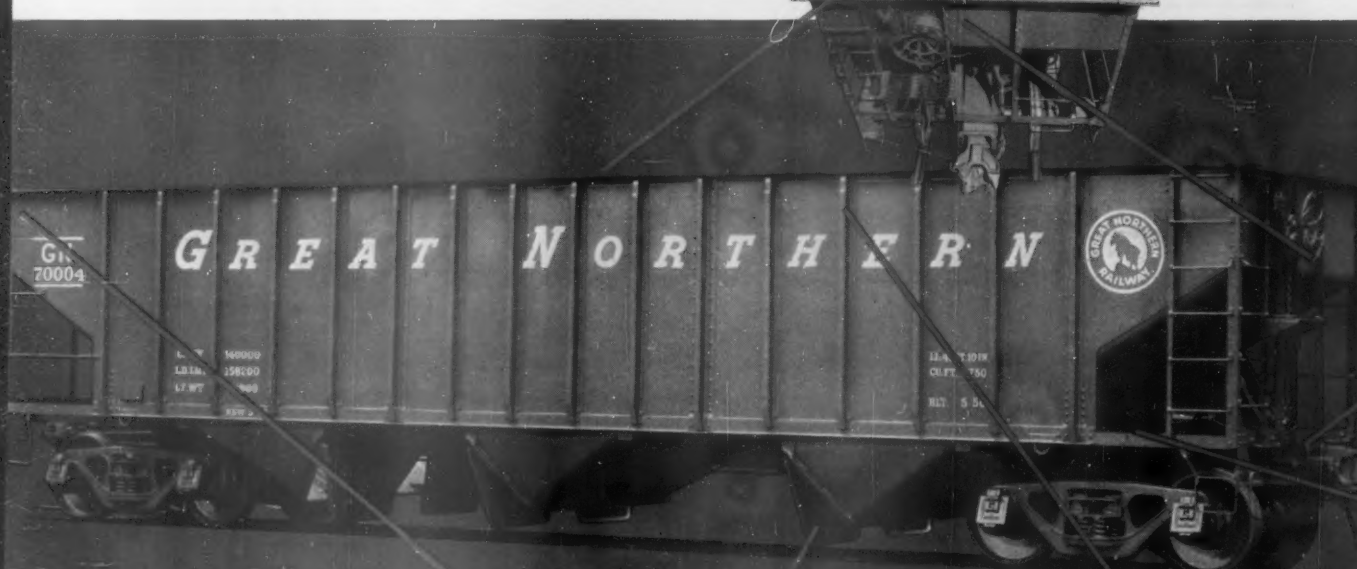
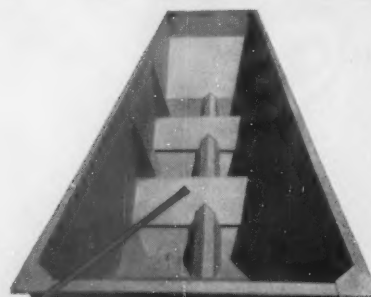
Supplying to railroads the complete line of welding and cutting materials and modern methods furnished for over forty years under the familiar symbol . . .





the GREAT NORTHERN chose

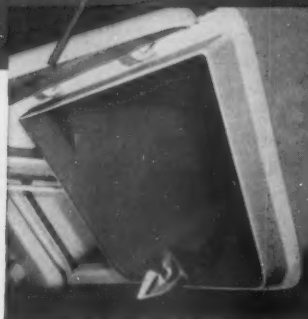
Heavy cross ridge brace combines with side sheets and posts for stability and prevention of side bulging. Rounded and tapered construction prevents material retention, combats corrosion and precludes snagging by clam shells.



The Standardized 70-ton PS-3 Open Top Hopper. Of 2750 cu. ft. capacity and welded construction, it meets or exceeds all AAR requirements. External side posts are continuously automatic arc welded to side sheets for strength, smooth interior and resistance to corrosion.



Vulnerable spots in ordinary hoppers, corners in PS-3s are made fracture-proof by inside corner bands plus corner caps.



Hopper chutes and doors are designed to withstand in-service abuse. Properly located and sloped for fast unloading into under-track conveyors, chutes are closed by positive-locking, easily-operated, precise-fitting doors.



Side posts are welded to top chord bulb angle, and are tapered at bottom to prevent accidental insertion of hooks.

PS-3

standardized hopper cars



Gussets welded across bottom corner angles provide extra reinforcement against the distorting effects of pushing.



Reinforcement of body bolster bottom flange provides additional anchor to center sill while further securing diagonal braces.



Covered Hopper, and the versatile new PS-4 all-purpose Flat Car in the Pullman-Standard standardized line.

Like all Pullman-Standard standardized freight cars, the PS-3 has been completely engineered and tested to best fill the Open Top Hopper needs of the railroad industry. Testing includes complete pre-building laboratory examination as well as thorough in-service test follow-through by trained field service engineers. Produced by specialized precision tools on long production runs, PS-3 fabrication excellence is assured by rigid quality control standards. The result of standardization is a ruggedly dependable car built to withstand all the hard usage to which hoppers are traditionally put. And a car that requires minimum maintenance while giving maximum dependability and performance. These benefits, plus lower first cost are built into every PS standardized freight car.

The PS-3's standardization includes sufficient flexibility to allow its production in two sizes: 50-ton 2143 cu. ft., and 70-ton, 2750 cu. ft.

The Great Northern is one of nine users whose orders for the PS-3 in recent years have totaled over 6800 units.

Among the physical characteristics users appreciate in the standardized PS-3 are its strength and durability through mutually supporting components and heavier sheets, its fast unloading abilities, its self-cleaning interior with no material retaining ledges or structural pockets and its long life which experience proves doubles the time between rebuilding.

The 70-ton PS-3 Open Hopper Car is expected to make an important contribution to the Great Northern's continuing efforts to maintain its enviable position at the forefront of American transportation.

WORLD'S LARGEST BUILDER OF PASSENGER AND FREIGHT CARS

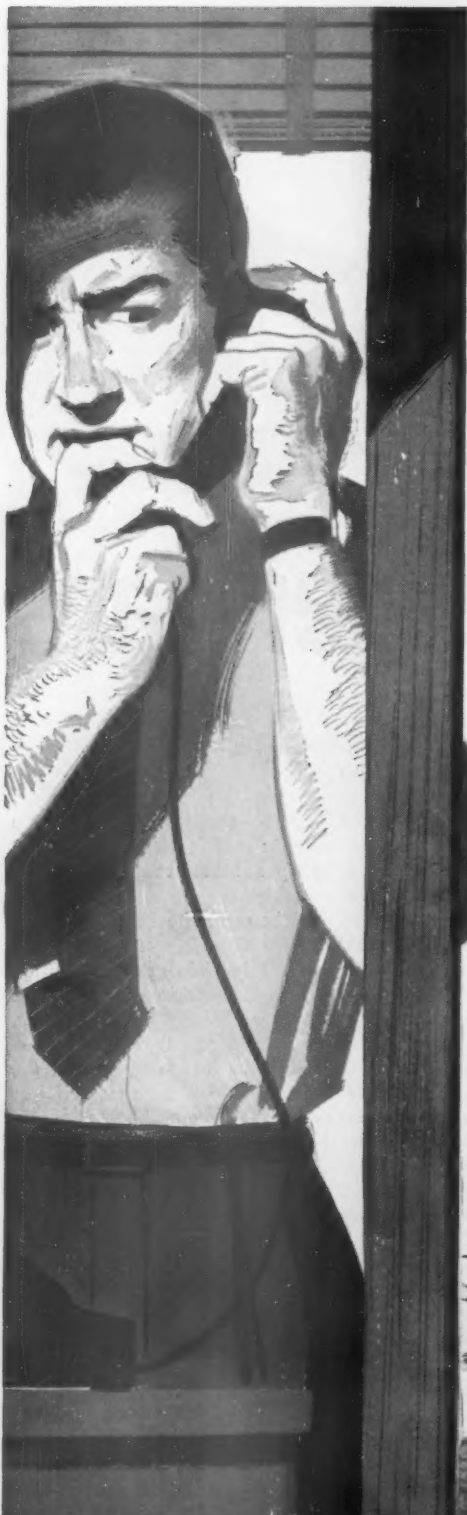
PULLMAN-STANDARD

CAR MANUFACTURING COMPANY

SUBSIDIARY OF PULLMAN INCORPORATED

79 EAST ADAMS STREET, CHICAGO 3, ILLINOIS

BIRMINGHAM, PITTSBURGH, NEW YORK, SAN FRANCISCO, WASHINGTON



"Nitric Acid leaking— we need help fast."

A General American District Manager got this message. One of his customers was in trouble. A 50,000-gallon tank of concentrated nitric acid had sprung a leak. The acid would be lost . . . property would be damaged . . . lives might be endangered. Fast action was imperative!

Nitric acid? That called for stainless steel tank cars. Where were the nearest ones? Find them . . . explain the situation. Call the railroad. Have a special train made up. Pick up the cars and highball to the trouble spot. Above all, hurry.

Within hours, the GATX stainless steel cars were at the plant, the acid was transferred to the cars and the storage tank repaired with a minimum of loss.

Unusual? Of course . . . but unusual service is one of the many benefits offered to lessees of GATX tank cars. There are over 48,000 cars in the GATX fleet . . . over 200 different types . . . available for your use without capital investment. To keep this fleet rolling, General American maintains a nation-wide network of district offices and shops that provide service on a 24-hour basis. That's why, when it comes to dependability, *it pays to plan with General American.*



GENERAL AMERICAN TRANSPORTATION CORPORATION

135 South La Salle Street • Chicago 90, Illinois



Supplier Allies Now Enlisted for Action

The railway supply industry now—for the first time in many years—is organized* to give aggressive support to economically sound transportation policies. In so organizing, the suppliers are acting primarily in their own interest—but the enlightened self-interest of railroad suppliers, in an economically healthy regime for transportation, also coincides with the public interest and that of the railroads.

Time to Get Going

It certainly was—and is—high time for railroad suppliers to be giving effective voice to their interest in more equitable and realistic governmental policies toward transportation. They have been too quiet—at least relatively—much too long for their own good.

Every time a truck rolls down a highway with a load of freight that could move more economically by rail, every railroad supplier is losing an opportunity for increased sales of his product.

There is a lot of traffic that *ought* to move by highway—and there may even be some traffic that *ought* to move by barge. There isn't any justification for either the railroads or their suppliers to get nostalgic, longing to see a lot of traffic back on rails that—all costs considered (including what the taxpayers contribute)—can still move more economically by some other method of transportation.

A very considerable proportion of long-haul tonnage now on the highways or rivers could, however, be moved more economically by rail.

Such traffic is on the highways and rivers for one or more of three principal reasons:

1. The failure of the railroads (usually because of regulatory restraint) to reflect the superior economy of railroad service in their rates;
2. The failure of the federal, state and local governments to make compensatory charges for the commercial use of the highways and waterways and to police such use adequately; and
3. Lower standards of service by the railroads than they would be able to provide, if their earnings and credit were better.

The Railway Progress Institute is doing some inquiring into the situation of the railroads and their potentials—and it could do no greater service, for its own mem-

bers, than to discover and point out to them *the traffic difference between equitable treatment for the railroads and the inequality which now obtains.*

This inequality could be translated into orders for — additional cars per annum; and also — additional locomotives; — additional mechanized yards; — additional tons of rail; — miles of CTC; and so on through the whole gamut of machines and supplies that railroads purchase.

The “railroad market”—relatively brisk as it is in 1956—is but a fraction of what it would be, year in and year out, if the railroads were only prospering as they have every economic and technological reason to prosper.

Deserves More Members

The railroad supply industry and its employees have just as real and vital a stake as railroad people themselves in seeing to it that the railroads get a fair chance to bid for the traffic to which they are economically suited. There are reasons for everything, of course, and there are many of them for the relatively late reorganization of the suppliers on a vigorous and effective basis. Surveying these reasons would serve little or no useful purpose. The significant fact is that the suppliers are now organized to do the necessary—and that is that.

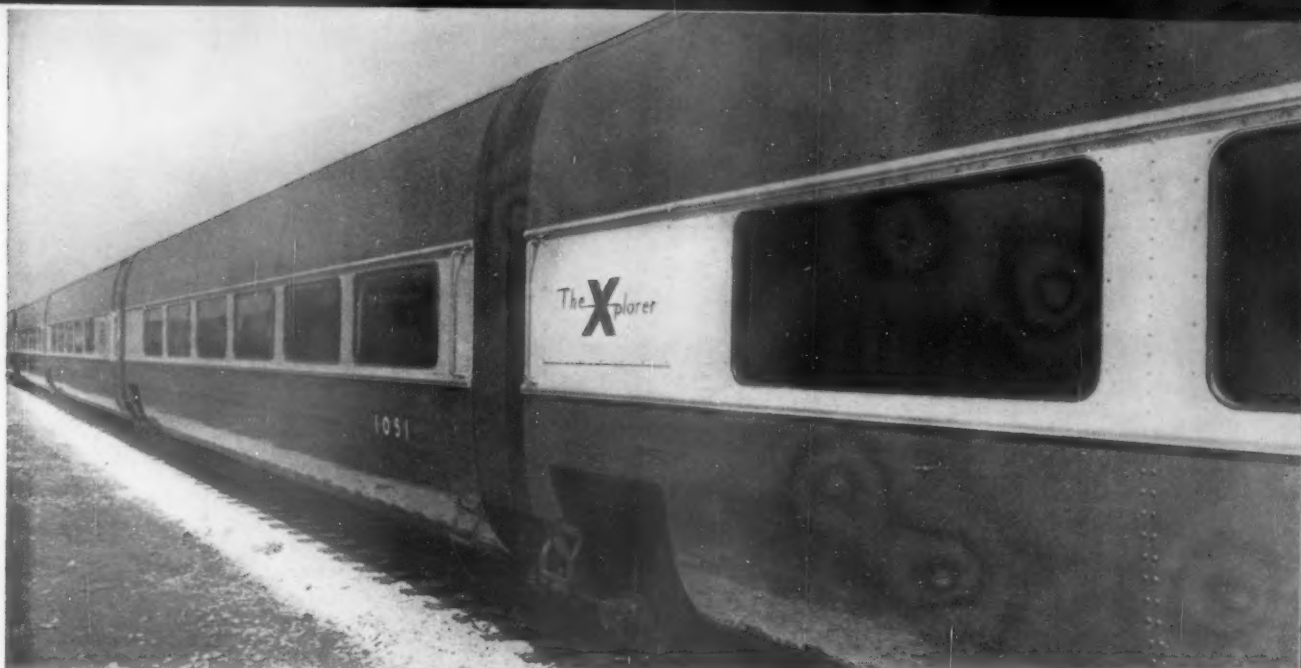
We say: “The suppliers are now effectively organized,” but in the interest of strict accuracy, we’d better qualify that statement to read: “A nucleus of suppliers is now effectively organized.” Because, in point of fact, the Railway Progress Institute does not have nearly as many members as it deserves to have; and as it must have to do the kind of really effective job that needs doing.

The organization can and will give a good account of itself with its present membership and its present budget. With twice the members and double the budget it could probably be four times as effective—because the impact of such an association is never directly proportionate to its membership and budget. Instead, impact increases more nearly in the ratio of the square or the cube of the number of people and dollars enlisted.

Affiliation by a supply concern with RPI means not only that it is putting some of its financial resources at work in behalf of the railroads—and of the public—but, just as importantly, it means that officers of member companies are putting in their valuable time on institute business. Railroad people will be doing themselves a favor to express their appreciation to those suppliers who are participating in this helpful and heartening endeavor.

In other industries—e.g., trucking and aviation—the suppliers have long taken an active part in furthering the interests of their customers. Sometimes, indeed, the suppliers have seemed to be even more active and determined than the principals. And why not? It's pretty hard to find a really prosperous supplier of a stagnant industry—or an impoverished supplier of a booming one.

*The details of the suppliers' recently revised association—the Railway Progress Institute—were given on page 34 of the April 9 Railway Age.



TRAIN X: A NEW CONCEPT

Now "Train X" Is Ready

Long-awaited "Train X," topic of much discussion in the railroad industry for several years, soon will begin revenue service on the New

York Central between Cleveland and Cincinnati.

As this issue went to press no specific date had been set for inaug-

uration of the service, but one well-informed guess was that the "Xplorer," as the railroad calls its latest set of lightweight equipment, will make its first revenue run between the two Ohio cities on or about May 29, on a schedule of approximately five hours.

The "Xplorer" will leave Cleveland early in the morning and start its return trip in the afternoon. Between terminals it will stop, in both directions, at eight points, as indicated on the accompanying map. It is the Central's hope that the running time—to be somewhat better than the road's "Mercury," which takes five hours and 40 min between the two cities—can be reduced after the new train has been in actual service for a while.

The Central has planned no special inducement fare for passengers on the "Xplorer." An excursion fare rate presently in existence between Cleveland and Cincinnati which reduces the roundtrip fare by about 20 per cent, also will be made available to "Xplorer" patrons. A series of newspaper advertisements about the new train will appear in on-line cities during the two weeks before actual revenue service begins.

Special spot announcements on the

"FIRST OF A GREAT FLEET"

Volume production of new equipment such as "Train X" can convert "present shrinking railroad passenger business into a growing, dynamic one," Robert R. Young, New York Central chairman, says in an exclusive statement for *Railway Age*.

Now is not the time to relax, for only by the continued effort of railroads and manufacturers, and continued expression of approval by the public, can the "Train X" concept be realized. It is only by putting the "Train X" concept into universal service, so that we can get volume production of such new trains, that the present shrinking railroad passenger business can be converted into a growing, dynamic one.

This means that the railroads must

not stop with delivery of these prototype models, such as the "Aerotrain" and the "Xplorer." We must test these trains critically, but only with the idea of taking back to the manufacturers information which will enable them to improve their next models, and the ones after that. Let us be very sure we consider these trains but the first of a great fleet which will not only preserve the present volume of railroad passenger travel, but vastly increase it.



SLEEK INTERIOR of the "Xplorer" utilizes all principles of modern design.

LATEST ENTRY in the field of lightweight passenger trains is the New York Central's "Xplorer," as the road has named its Pullman-Standard-manufactured concept of "Train X."

to Roll

radio, as well as on the one television program sponsored in the area by the Central, will be used to direct the attention of the public to the road's latest passenger-service innovation.

Before its entry into revenue service the "Xplorer" will make a special Cleveland-Cincinnati trip on May 16 for representatives of the press, radio and television. It will then be given a series of public exhibitions at the following times and places: May 17, Cincinnati; May 18, Middletown and Dayton; May 19, Springfield; May 20, Columbus; and May 21, Cleveland.

In addition, the Pullman-Standard Car Manufacturing Company, which built the train, plans to take the "Xplorer," before its delivery to the NYC, on at least one short demonstration run for railroad presidents and members of their immediate staffs.

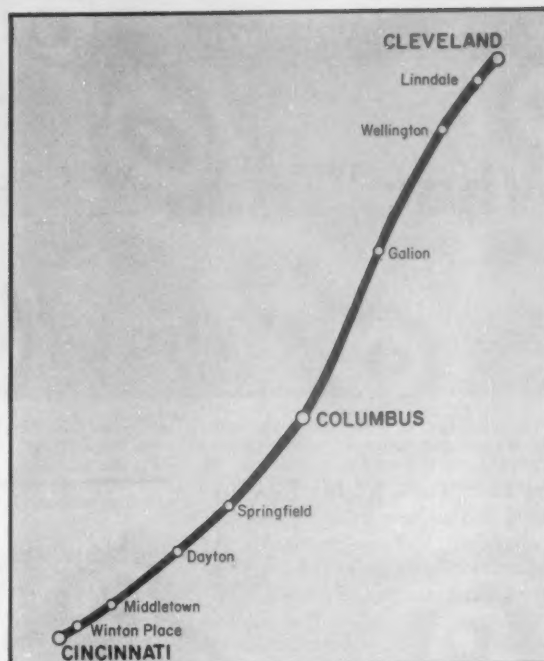
It was in 1947 that Robert R. Young, then chairman of the Chesapeake & Ohio and now chairman of the NYC, authorized Kenneth A. Browne, C&O research director, to study the "Talgo" train, which had been built for Spanish railroads, to see if it could be made useful on U.S. railroads. This was the beginning

of work on the design of "Train X." In 1951 Pullman-Standard built an experimental "Train X" car and began testing it, with the collaboration of Mr. Browne.

Early in 1953 the experimental car made a 48-mile test run from Detroit to Plymouth, Mich., for officers of 15 major railroads. The car reached a top speed of 90 mph. Later the same year the NYC and C&O announced

jointly that they would cooperate in research and development of lightweight passenger-train equipment of the "Train X" concept.

In 1955 the Central and the New Haven both announced that orders had been placed with Pullman-Standard, for the cars, and with the Baldwin-Lima-Hamilton Corporation, for the locomotives, for separate versions of "Train X."



"TRAIN X," called the "Xplorer" by the New York Central, will make its regular Cleveland-Cincinnati run in slightly more than five hours. Stops will be made, in both directions, at all points indicated on the map.

OPTIMISM REARS ITS PLEASANT HEAD

"At long last there is even some room for optimism—albeit long-term—about the passenger side of our operations, which has cost your company and the industry so dearly for more than a decade. The concept of a low center of gravity, lightweight passenger train, so long in the mind and heart of our chairman, Robert R. Young, and popularized by him as the 'Train X' concept, has been on our list of preferred projects since the new management took over the Central.

"Although we are very hopeful of the results this new passenger equipment will bring about, it is not enough

to solve our problem. The evils built into the hodge-podge of unequal taxation, regulation and subsidization of the various competing forms of transportation not only result in lavish handouts of tax money and facilities to our competitors, but frustrate us in our efforts to provide the type of service the public wants at a price the public is willing to pay. In cooperation with the rest of the railroad industry, we are seeking a return to fair competition in the transportation industry."—Alfred A. Perlman, NYC president, in the road's 1955 annual report to stockholders.

What "Train X" Is Like . . .

What Makes It Different?

The first "Train X" has been delivered to the New York Central by its builder, Pullman-Standard. A similar train is on order for the New Haven. The locomotive for the NYC train, assembled by Baldwin-Lima-Hamilton, is the subject of a separate article in this issue.

The NYC "Train X," which that road will call the "Xplorer," will have its aluminum exterior painted in blue and yellow. The NH version will introduce an innovation—an exterior surface of colored aluminum. Each NH car has a dark gray finish contrasted with natural metallic aluminum.

The surface of the colored aluminum will be highly abrasion resistant. The coating is a layer of crystal clear aluminum oxide built up electrochemically as part of the metal. It is practically as hard as sapphire, which is basically aluminum oxide.

The train consists of 9 45½-ft units. The entire body structure of each unit weighs less than 7,000 lb, including the end sections. This is about 150 lb per lineal ft, or 40 per cent of the weight of a conventional car body. Interior trim and equipment bring the weight to 13,000 lb for the 48-passenger compartment, or 300 lb per foot of length. Equipment in the end lockers, wheel wells, the couplers, etc., add another 10,000 lb. Wheels, axles and suspension details bring the total weight to 28,500 lb per unit. The entire 9-section train weighs less than 135 tons empty (excluding the locomotive, which weighs 68 tons) and about 165 tons loaded—about 675 lb per seat.

In the "box in a box" construction, the inside finish "floats" on the structure through flexible supports at all points of contact. The floor is

How its suspension works

- Suspension system banks the cars into curves like pendulum suspension but without the long space-consuming springs.
- Air springs keep the car body at constant height regardless of load.

How it is built

- Body construction is basically an exterior box (the superstructure) in which a tight interior box (the inside finish) is flexibly mounted.
- All-aluminum superstructure and an underframe mostly of aluminum.
- All electric heating.

How the inside is made "damage proof"

- Removable zippered seat upholstery.
 - Interior requires no painting or repainting.
-

mounted to the stringers on rubber pads especially designed for vibration mounting. Similarly, the interior side and end elements are attached to the structure by vibration mounts or rubber strips specially designed for flexible mounting.

Metal panels are either treated with a sprayed or damping material or they are damped by the plastic material used for the inside finish. Double-wall sound barriers are used at the wheel wells.

The floor floats on resilient pads which correct for vibration in three

planes — longitudinal, vertical and lateral. No adhesive or bolting is required between the pad and the flooring or between the pad and the underframe. The pads are neoprene and resistant to oil, grease and permanent set.

Foamed-in-place insulation is used in the belly of the car, reportedly the first time material of this nature has been used in a railway passenger car. The initial reason for using insulation of this type was for its thermal value. Of nearly equal significance, however, is its ability to keep sound

transmission at a low level. This insulation also has the advantage of filling in all right angles and nooks and crevices. It also acts as a sheet stiffener.

An extra wide air space between inner and outer panes in the window (1 in. in contrast to the usual $\frac{1}{4}$ in.) decreases "acoustic coupling" and is particularly effective in the speech frequency band, or the range of noise that interferes with conversation. This wider spacing transmits a minimum of vibration (hence noise) from the outer to the inner window.

Air duct noise has also been studied to keep it to a minimum. The recirculating duct has a special acoustical lining in the bottom. The main air duct has waved sheets inside for 4 feet between the air conditioning unit and the beginning of the duct proper. This gives the air a sinusoidal path for this length. The duct itself has top and sides of 1-in. glass fiber insulation covered with a heavy vinyl plastic coating on the inside surface.

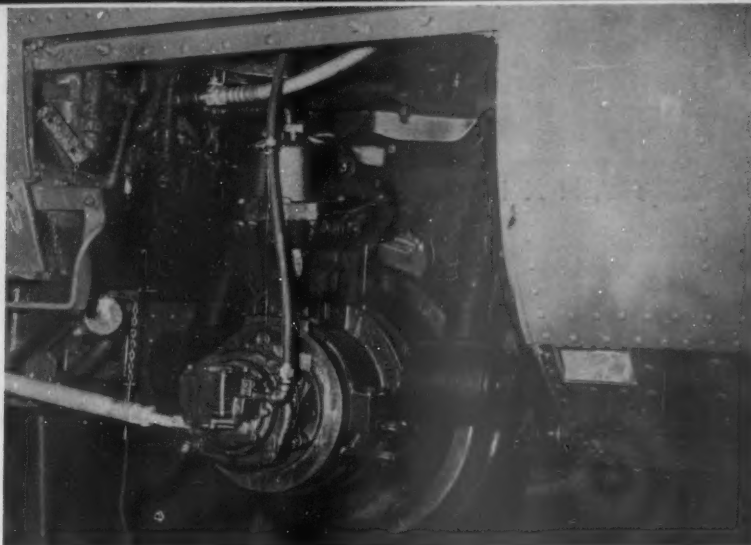
Passenger-Proof Interior

Primary objective of the interior car design was to make it attractive while requiring the least possible maintenance without compromising weight or cost factors. None of the materials used in the car interior requires paint and all are easy to clean.

The curved section of the ceiling is glass fiber insulation 1-in. thick, formed to the contour with vinyl facing prebonded to it. This gives a finished ceiling plus insulation at the same time. The vinyl covering can be washed and does not need painting. Each sheet extends from the center duct to the side and is $6\frac{1}{2}$ ft long.

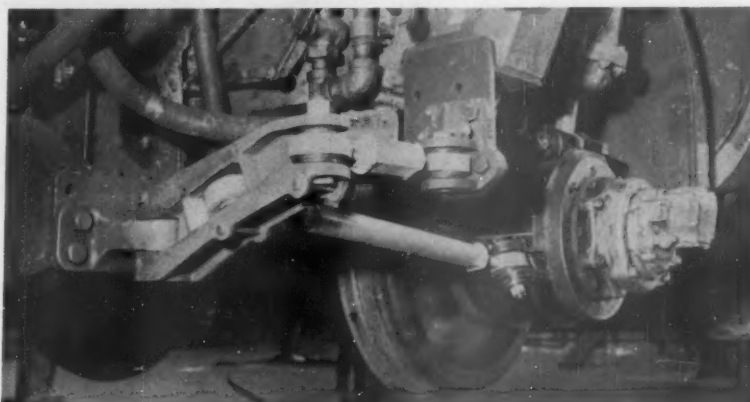
The walls are faced with either a vinyl material or a Melamine (a hard plastic like Formica or Micarta). The two types of plastic are mixed to give different decorative effects. Both

COUPLING automatically connects the two air lines, the 42 electrical circuits in the lower panel, and the 480-volt train line power in junction above the door. After coupling, the dolly wheels are raised by the air cylinder at the right of the door opening.



BRAKE APPLICATION—The cylinder is mounted on the journal box and moves a lever whose center fulcrum is also attached to the box. The shoe is attached to the other end. As

the entire assembly is rigidly mounted to the journal box, and moves with it just like the wheel, road shocks do not affect the relative position of the shoe and the wheel.



THE AXLE, is made to bisect the angle between adjoining car faces, aligning it radially to the curve, by a lever between the car end and the

pivoting male coupler, movement of which follows the adjoining car. The steering rod attaches to the center of this lever.



WHAT TRAIN X IS LIKE . . .

types are bonded in place by .040-in. aluminum backing, forming the inside sheets. Insulation goes behind these sheets as on conventional cars.

There are three basic color schemes and end wall decorations. End finish materials are various decorative patterns using vinyls and hard plastics. Flooring of 1/16-in. vinyl tile in 9 in. squares with different color patterns gives distinctive floor treatment.

Seats are specially designed for light weight with comfort and ease of cleaning. Cushioning is of foam plastic (similar to foam rubber). The base of the seat fits flush with the floor all around. There are no dirt pockets in the base or between the base and the floor. The base of one seat also serves as the foot rest for the seat behind.

Upholstery is essentially of animal fiber for the seat and back sections where the passengers' body weight rests, while vinyl trim is used on the head rolls, the arm rests and the forward part of the seat cushion. Backs of the seats are also of vinyl to withstand scuffing. Again for comfort, the head rolls are exceptionally soft.

The upholstery is removable for cleaning by action of a zipper in the facing edges of adjoining seats. The seats are contoured, and have ash

trays in each arm under the lever for reclining the seat.

The need for shades, blinds and draperies is eliminated by tinted window glass. The degree of tint is graduated with the lightest area in the approximate horizontal center. Large (26 in. by 66 in.) windows are used throughout the train.

How Air Springs Work

Air, rather than coil or leaf springs, are used in "Train X" for two principal reasons—to give constant height and constant frequency. It was thought that weight changes, which go as high as 40 per cent on some axles, would affect the stiffness and frequency of a coil spring too much for satisfactory riding comfort.

With the articulated arrangement (Railway Age, Dec. 26, 1955, p. 35), if coil springs with their straight line characteristic or leaf springs with a nearly straight line characteristic were to be used, some axles would have to be designated specifically for operation at the end of the train only and others for operation within the train with an adjacent car hung on them. The air spring keeps the body height constant whether an axle end is supporting only its own body weight, as at the end of the

train, or whether the non-axle end of the adjoining pair of units is hung from it.

The air springs in "Train X" are similar to those in use on buses. The rubber changes in diameter but slightly and this is due mainly to the deflection—not to stretching. Stretching is largely prevented by steel rings.

Constant height is maintained by adjusting the pressure in the air spring. It is set at full on a car in the middle of the train supporting the end of an adjacent unit. The pressure is set at 60 per cent when the car is at the end of the train to compensate for the lesser weight on the springs.

"Train X" introduces an aluminum alloy new to underframe construction. This corrosion-resistant high strength aluminum alloy (Specification 6061) has been used for many years in other fields in its fully heat-treated temper (+T6). It has been used in its partial heat treatment (T4) in railway cars, but this is the first such T6 application.

The underframe is entirely fabricated from the 6061-T6 alloy (permitting weight savings over and above those attained with the 6061-T4 alloy) with the exception of the center end sill and the center sill extension on each end. The wheel wells and end sills are framed with welded high-tensile, low alloy steel. The center sill will resist a compressive force of 800,000 lb.

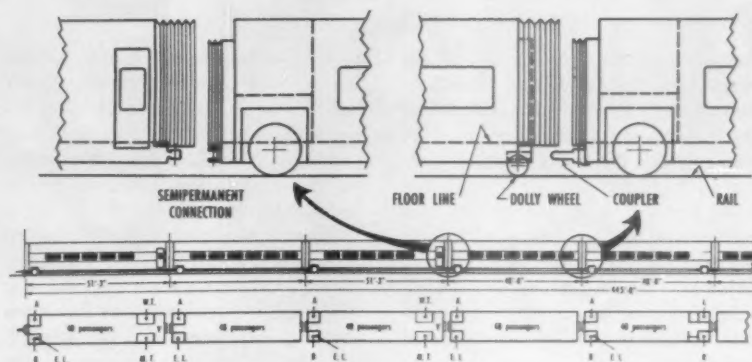


THE LIGHTING DUCT is combined with the heating and air conditioning duct in the center top of the car. The curved ceiling sheets are vinyl plastic bonded to 1-in. glass fiber insulation.



THE METAL DUCT leading to the overhead heating and air-conditioning duct contains sinusoidal shaped sheets to minimize air flow noise. Also visible is the rubber mounting for the baggage rack brackets, another noise reducer.

With a 39-in. seat spacing, the train accommodates 392 passengers. It comprises a 2-axle center car with semi-permanently connected pairs of cars on either side of it. Each pair of semi-permanently connected cars consists of one 51½-ft vestibule car and one 48-ft car joined with the vestibule in the middle. Dolly wheels on the free end of the pair allow switching to couple or uncouple, which makes or breaks all air and electrical connections. To allow a vestibule car to operate either at the end of the train, or within the train with an adjoining car end over its axle, both the breaking ratio and the pres-



sure in the air spring are changed to conform to the different weights on the axle under the two

conditions. Pairs of cars can be coupled together or uncoupled quickly.

The entire superstructure is likewise fabricated from aluminum sheet and extrusions. This superstructure, while tubular in shape, is basically of conventional structural design. The side posts and carlines are structural shapes formed from aluminum sheets while most other members are extruded aluminum shapes.

The outer skin is also of aluminum as are the two crash posts on each end, each of which can withstand

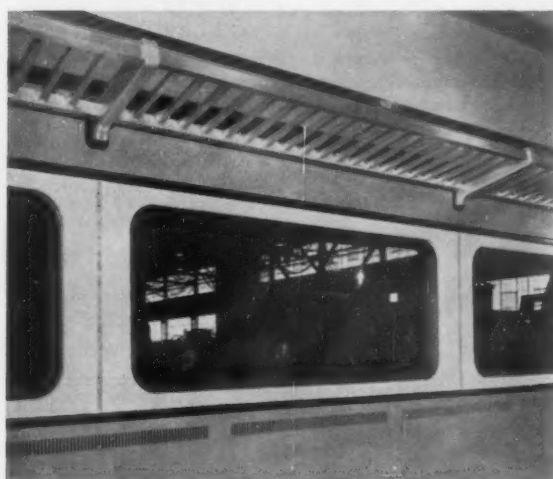
a 300,000-lb collision force. The outside skin is Alclad aluminum (i.e., covered with pure aluminum coating). A non-metallic separator coating between aluminum and steel sections, as well as between adjoining aluminum sections, prevents accumulation of moisture—undesirable because of its accelerating effect on corrosion and electrolytic action.

Auxiliary electrical loads are all carried by a head-end power unit in the locomotive which furnishes 480-

volt, 3-phase 60-cycle power. Total load for the 9-unit train is 283.5 kw, including the maximum air conditioning load of 144 kw.

A 400-hp diesel engine on the locomotive supplies the auxiliary power for the train. It is distributed through the cars by aluminum bus bars above the ceiling. Connection between the cars is over the vestibules and is automatic upon coupling.

Each car has a completely self-



WINDOW TRIM PANELS are one-piece molded plastic joined to each other by snap molding. Connections to the frieze, wainscoting and window sash are extruded rubber moldings.



THE BASE of the seat fits flush with the floor all around without dirt pockets between the base and the floor or in the base itself which also serves as a foot rest for the seat behind.

WHAT TRAIN X IS LIKE . . .

contained air conditioning unit which plugs into the train line. Distribution of the cooled air is through the same duct as the heating air. It also contains the fluorescent lighting. As in heating, the air distributed is 40 per cent fresh and 60 per cent recirculated air. Discharge of the air into the car is through two strips of adjustable slot diffusers, one on each side of the air duct. The air conditioning unit is entirely self-contained and factory sealed.

The water system uses electric jackets for instantaneous heating of the water. Water can be added from either side and it is stored in a stainless steel tank above the washroom ceilings in each of the vestibule cars. Water flow is by gravity from this tank rather than by pressure. The non-vestibule cars do not have wash, toilet or drinking water facilities.

Unconventional Brake System

One large and one small air line extend through the train. The large line is termed the supervisory line, the other the straight air line.

For a service brake application the engineman moves the control lever for as much brake as he wants. The

further he moves the brake handle the heavier the application. Thus the "Train X" brake application depends on how far the lever is moved rather than on how long it remains in the application position as on regular equipment.

Moving the control lever sets up an electric circuit which energizes magnet valves on each car, causing air from the reservoirs to flow into the brake cylinders and the straight air line. When the pressure in the straight air line reaches the amount set on the control lever, further air flow stops (except to make up for any leakage) and the brakes remain applied at the pressure set by the engineman.

The second, or supervisory line, supplies air to the car reservoirs continuously, whether the brake is on or off. It also controls emergency application. Any depletion of supervisory line pressure causes maximum brake cylinder pressure, whether the depletion occurs from an outside cause, as a break-in-two, or by the engineman's action in moving his control lever to its extreme position.

Failure of the electric control circuit automatically causes the straight air line to take over the brake appli-

cation pneumatically. If movement of the control lever fails to build up straight air-line pressure, a pressure differential is created in the control arrangement.

This differential puts air in the straight line and applies the brakes on each car in the same manner as the magnet valves but somewhat delayed, due to (1) a short period of time to build up the pressure differential, and (2) the pneumatic delay in filling the line from the front to the rear of the train (although the delay generally would not be enough for the engineman to notice).

The system has another feature, intended to permit a car to be used anywhere in the train without underbraking under one condition and overbraking under another. When a vestibule car is used at the end of the train, where it is not supporting an adjoining car on its end, the braking force on its axle is reduced to 60% to conform to the lesser weight on the axle.

When a vestibule car supports an adjoining car on its end, 100% braking force is applied. The switchover is made by changing the air flow circuit between two diaphragms—one of which balances brake cylinder pressure against 60% of the straight air line pressure, the other against full line pressure.

While this system, known as the

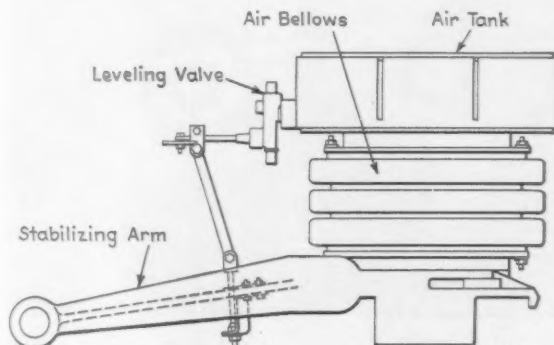
HOW THE "AIR SPRING" OPERATES

This outline sketch shows the main elements of the "Train X" air spring. The air within the spring has an open path at all times to the tank above, which increases the volume of air on which the spring effectively operates for cushioning without increasing the size of the rubber bellows itself.

Leveling and constant car body height is achieved by admitting air from the supervisory line or discharging air from the tank to the atmosphere. A slide valve is connected to the tank which allows movement $\frac{1}{4}$ in. either way from the center without putting air in or out of the tank.

If the tank is depressed more than this amount air will flow from the supervisory air line into it to increase the pressure in the tank and the bellows to raise the level to the predetermined height. If the train load should lighten the tank will rise and the slide valve will open another port which will discharge air from the tank to the atmosphere and return the car to the proper level. Road shocks which cause the car to bounce up and down will of course admit or discharge minor quantities of air but this is said to create no problem.

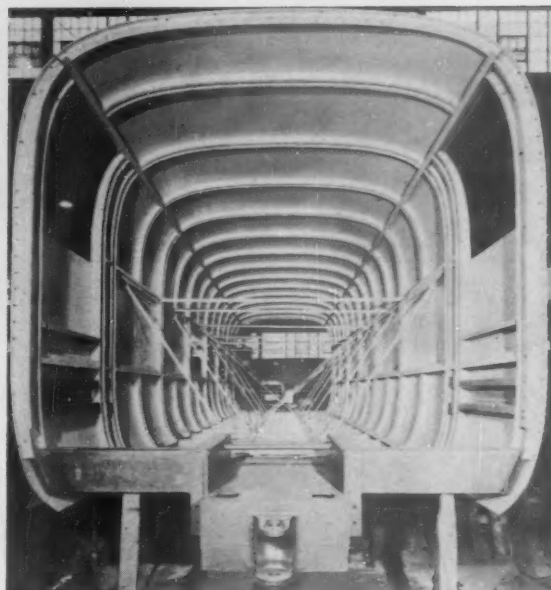
Air spring pressures on a car within the train (and therefore supporting an adjacent car end) are 90 psi with a full passenger load, 70 psi empty. For the axle at the end of the train these pressures are 56 and 45 psi.





NEW TYPE INSULATION, foamed-in-place, fills the underframe. It completely fills all angles and crevices and acts as a sheet stiffener. Applied primarily for its thermal insulating value, the material has proved a good sound deadener as well.

SUPERSTRUCTURE is an aluminum alloy mounted on an underframe having steel end sections and aluminum alloy center sections. The structure meets all applicable AAR and RMS specifications. Longitudinal members are extrusions which are joined to pressed earlines, side posts and crossbearers.



LWE, cannot be used to control cars with standard automatic brake equipment, the locomotive can be equipped with a triple valve device that will allow the towing locomotive to actuate the pneumatic straight air feature and to charge the reservoirs.

The cars are equipped with the new "Cobra" shoe tread brake. One shoe is used per wheel, and it is mounted on top rather than acting on the side of the wheel as is typical of

other single-shoe brakes. Each shoe is applied by its own cylinder.

All Electric Heating

Train X is heated exclusively by electricity. With 40% makeup fresh air (vs. the usual 25% fresh air) about 30% of the heat comes from the electric strip heaters in the sides below the windows (from which it discharges into the car by convec-

tion through slots under the windows). The remaining 70% of the heat is from the overhead duct.

Controls give either one-third or full heat. When car temperature drops below the control setting, one-third of the heat capacity is applied in both the floor and overhead heat by connecting the elements in Y. If this first step cannot heat the car to the desired setting, a second contact switches the heaters to delta connection giving full heat output from the same set of units.

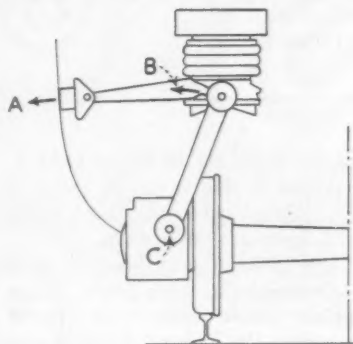
For standby heating the floor heat only is used to avoid the additional loss by introducing fresh air.

Batteries in the locomotive are used to crank the engine and to operate the control circuits for the brake circuit (64 volts). One small 6-volt battery in each car will operate emergency lights up to 5 hr. These emergency lights are strictly minimum, comprising two small bulbs in each passenger compartment and one in each vestibule. They are not intended for full car lighting under emergency conditions.

Lighting in the NYC train is by four rows of fluorescent tubes in the overhead heating duct and one along either side for indirect lighting. Illumination is both directly downward and out the sides. The New Haven train will have the two outside rows for indirect lighting and individual reading lights mounted on the baggage rack over each seat.

HOW "TRAIN X" BANKS INTO A CURVE

As the car goes into a curve to the right, centrifugal force causes the body to go to left, moving point A on the horizontal strut in that direction as indicated by the arrow. This moves B in the arc about C as shown, raising this side of the car and leaning toward the inside of the curve. The other side of the car is being lowered at the same time as that side's equivalent point B (where the horizontal and suspension struts join) is lowered by moving in an arc toward the center of the car. Lateral restraint is attained by torsion units at B and C.



TRAIN X: A NEW CONCEPT



MEC-HYDRO locomotive with a weight of 87 tons is 58 ft 9 in. long, but only 11 ft high. All power is delivered through the front truck. The wheel base of this power

truck is 15 ft, and that of the idler truck at the rear of the unit is only 7 ft. Truck center distance is 32 ft 7 in. Frontal dimensions are shown at right. →

BALDWIN-LIMA-HAMILTON USES GERMAN COMPONENTS . . .

Diesel Mec-hydro Powers "Xplorer"

Truck-mounted high-speed diesel engine and Mec-hydro transmission are radical departure which will get first U.S. high speed service test on NYC's Cleveland-Cincinnati run

New concepts in design and arrangement have been applied to the "Xplorer" locomotive just as they have to the train it hauls. This 174,000-lb passenger power unit delivers all of its 1,000 traction horsepower through a two-axle front truck.

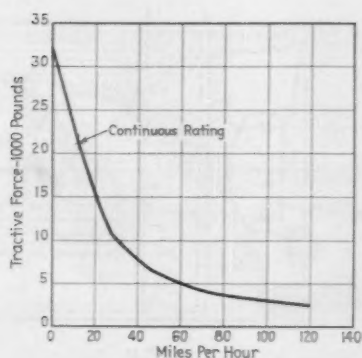
This front truck is a complete power package having the diesel engine, hydraulic transmission, drive shafts and axle drives all mounted on it. The locomotive body is suspended from both trucks by body swing links designed to allow the locomotive to operate through curves at high

speeds. The complete power truck is arranged so that it can be removed and replaced quickly to obtain maximum locomotive utilization.

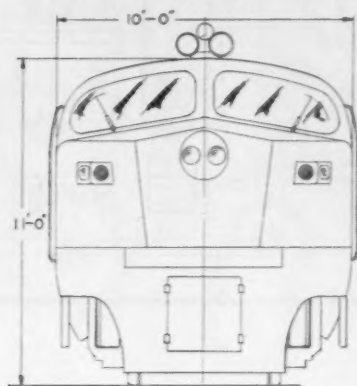
The 1,000-hp propulsion diesel is a German-built, high-speed, V-type engine which delivers its power through a Mec-hydro hydraulic transmission. This torque converter-mechanical drive is also German-made. While both are new to American high speed service, the Maybach diesel has been used for over 15 years on European railroads, and this type of transmission has won acceptance.

The transmission has four speeds in forward and in reverse which are claimed to give high efficiency over the entire speed range. From the continuous tractive force of 21,000 lbs at 12.6 mph, full horsepower output is maintained up to the maximum speed of 120 mph.

Mounted in the body of the locomotive is an eight-cylinder Maybach engine driving a 300-kw, 440-volt, 3-phase, 60-cycle generator. This engine has many components interchangeable with those in the propulsion engine. The generator supplies



TRACTIVE EFFORT characteristics permit continuous operation at 12.6 mph and maximum speed of 120 mph.



electric power for the entire train.

While the length and width of this 0-4-4-0 passenger unit are not unusual, the overall height has been held to only 11 ft to match the contour of the lightweight "Train X" cars it hauls.

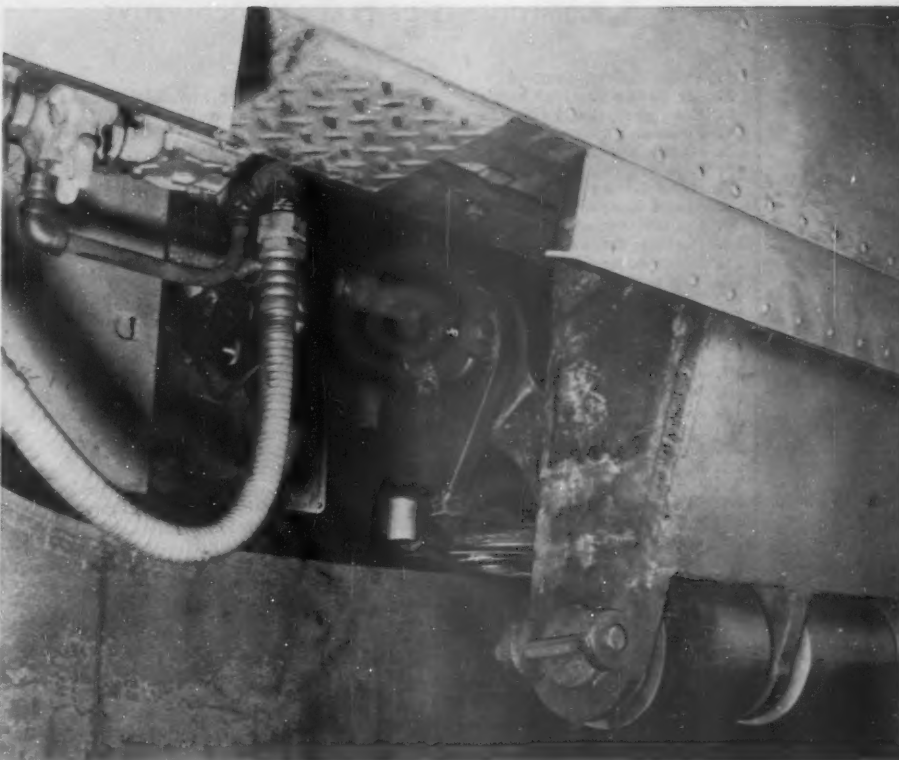
Maybach Engine

The engine's appearance is not unlike that of more conventional V-type diesels. Apparent differences are the vertical shaft turbocharger mounted between the two cylinder banks on the top of the engine, the turbocharger intercoolers, and the short overall length of the engine itself. In Europe this power plant is known as the "tunnel" engine. This comes from the shape of the crankcase which combines the frame and bedplate into one piece, and from the large main bearing bores. Roller type main bearings are used instead of conventional friction bearings.

Normal operating speed of the propulsion engine is 1,550 rpm. It has 12 cylinders with cylinder bore of 7.8 in. and stroke of 7.9 in. All combustion air is cooled after leaving the

turbocharger and before it goes into the cylinders. The engine has a weight of approximately 10 lb per hp—less than that of U.S. locomotive diesels.

Both the propulsion engine and the smaller auxiliary engine operate on a four-stroke cycle. The smaller engine is very similar to the traction engine except that it has only eight cylinders. Operating at 1,200 rpm, it has a rating of 570 hp.



BODY SUSPENSION is swing link type, used over both the power truck and the idler, with the intention of reducing the effects of centrifugal force and thus permitting high speeds through curves.

The crankshaft has solid disc webs used also as the inner races for the roller main bearings. This shaft design permits use of longer crankpins and closer cylinder spacing. The short disc-webbed crankshaft with large diameter crankpins is claimed to reduce crankshaft twist and torsional vibration.

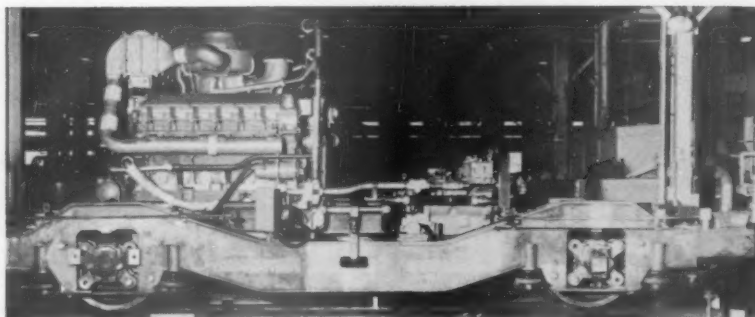
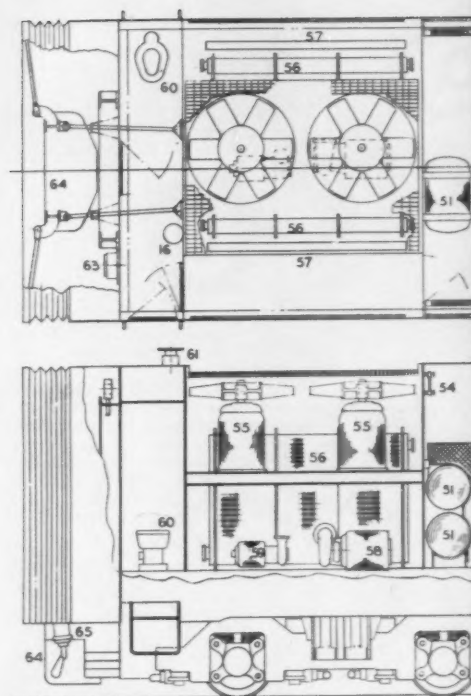
The connecting rods are fork-and-blade type. Pistons are of two-piece construction with removable forged

Suppliers for NYC Diesel Hydraulic Locomotive

Adams & Westlake.....	Sash	National Brake Co., Inc.....	Hand Brakes
Aeroquip Corporation.....	Flexible Hose Lines	New York Air Brake Co.....	Operating Brake
Air-Maze Co.....	Air Filters	The Pyle-National Company.....	Headlights & Electric Fittings
Barco Manufacturing Co.....	Speed Recorder		
Biedling & Olberg.....	Marker Lights	Sherwin Williams Co.....	Paint
Coach & Car Equipment Co.....	Seats	Standard Steel Div. B-L-H.....	Wheels, Axles and Springs
General Electric Corp.....	Controls		
General Rwy. Signal Co.....	Cab Signal	Timken Roller Bearing Co.....	Transmission Bearings, Journal Bearings
Gleason Works.....	Gears	Weinman Pump Company.....	Water Pumps
Harris Products Company.....	Links & Draw Bar	Westinghouse Air Brake Co.....	Couplers, Foundation Brake, Air Compressors, Operating Brake
K. W. Batteries, Inc.....	Batteries	Young Radiator Company.....	Radiators
Koppers Company, Inc.....	Fans		
Kysor Heater Company.....	Shutters		
Met-L-Wood.....	Doors		
Morton Mfg. Company.....	Doors		

COMPONENTS OF TRAIN X LOCOMOTIVE

- | | |
|--------------------------------------|---|
| 1. Train Safety Control | 33. Bell |
| 2. Air Brake Control Equip. | 34. Number and Class Light |
| 3. Emergency Fuel Cut Off | 35. Pre-Lube Pump |
| 4. Fireman's Seat | 36. Lube Filter (Main Engine) |
| 5. Engineer's Seat | 37. Lube Filter (Aux. Engine) |
| 6. Cab Heater | 38. Fuel Oil Transfer Pump |
| 7. Hand Brake | 39. Propulsion Engine Compartment |
| 8. Speed Recorder | 40. Auxiliary Diesel Engine |
| 9. Control Stand | 41. Generator (AC) |
| 10. Parking Brake Valve | 42. Exciter |
| 11. Electro-Pneumatic Brake Valve | 43. Air Filter Panels |
| 12. Train Control Ack. Whistle | 44. Compressor |
| 13. Train Control Acknowledger | 45. Aux. Engine Panel |
| 14. Horn Valve | 46. Fuel Oil Tank |
| 15. Inspection Reports (R.S.) | 47. Fuel Oil Gauge (R&L) |
| 16. Fire Extinguisher | 48. Fuel Oil Filler (R&L) |
| 17. Inspection Door (Transmission) | 49. Battery Charging, Pumps, Fan Control Equip. |
| 18. Water Cooler (elec.) | 50. Train Power & Loco. Control Equip. |
| 19. Air Horn | 51. Air Reservoir |
| 20. Cooling—Supercharger Intercooler | 52. C.O. Cock |
| 21. Engine Air Filter—Oil Bath | 53. Drain Cock |
| 22. Exhaust Stack | 54. Water Gauge (Expansion Tank) |
| 23. Propulsion Diesel Engine | 55. Radiator Fan & Motor |
| 24. Torque Converter Transmission | 56. Radiator Cores |
| 25. Axle Drive | 57. Radiator Shutters |
| 26. Drive Shaft | 58. Water Pump (Main) |
| 27. Lube Oil Filler | 59. Water Pump (Aux.) |
| 28. Lube Oil Level Indicator | 60. Toilet |
| 29. Lube Oil Drain | 63. Back Up Light |
| 30. Brake Cylinder | 64. Coupler (Train) |
| 31. Sand Fill | |
| 32. Sand Box | |

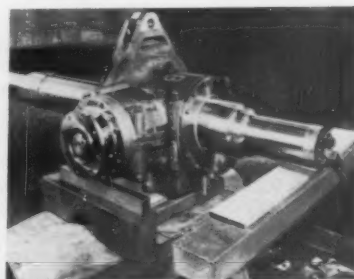


MAYBACH 1,000-hp engine is mounted directly on the long wheel base truck. Vertical shaft supercharger and air intercooler can be seen at the top

of the engine. Mec-hydro transmission is mounted toward the front (right) of the truck. The sand boxes are also truck-mounted.



MEC-HYDRO UNIT is a hydraulic-mechanical transmission incorporating a disengaging type hydraulic torque converter, four-speed mechanical gear box of three sets of helical gears and positive overrunning claw clutches, and operating controls.



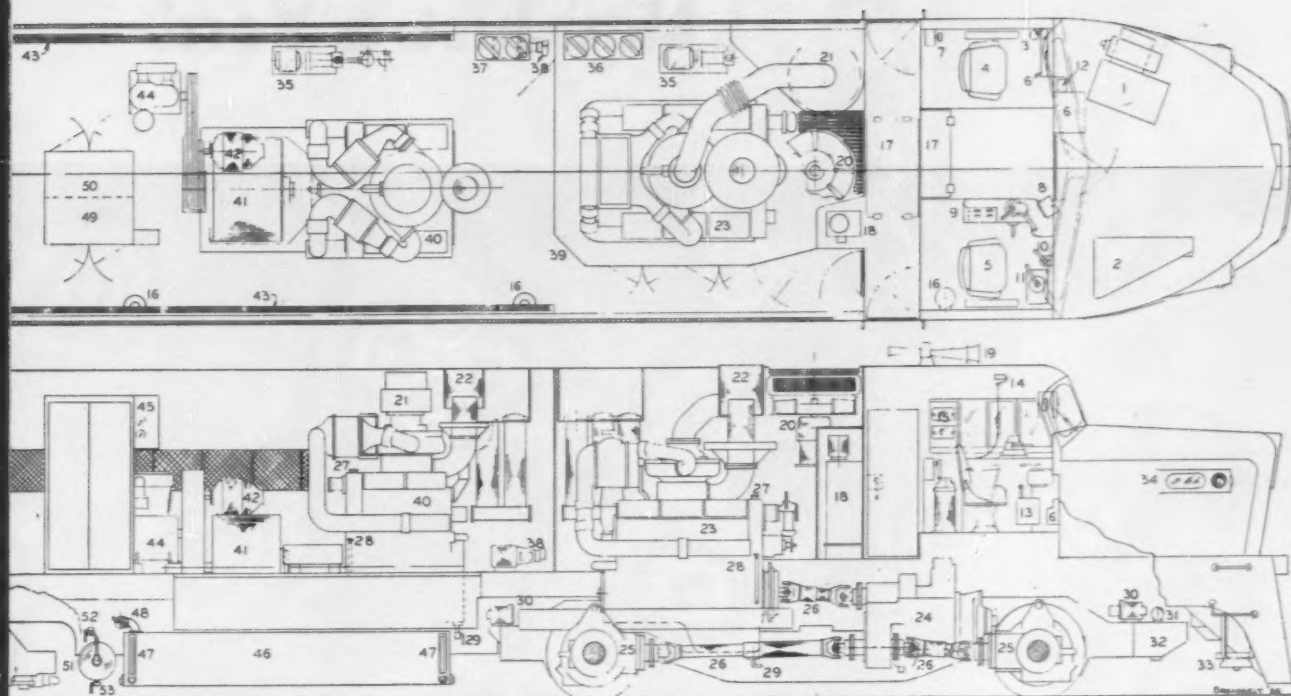
SPIRAL BEVEL gears drive the locomotive. Gears and anti-friction bearings are lubricated by a forced feed system. Torque reaction is absorbed by a rubber cushioned member linking the truck frame to clevis on top of housing.

steel crowns which carry the three compression rings. The water-cooled cast iron liners are supported at the top, center and bottom to insure exact alignment and for maximum reinforcement. Dual seals are used at the bottom of the liner with a tell-tale hole in the block which drains the space between the two seals. This is to detect leaks and to prevent water dilution.

Each cylinder head has three inlet and three exhaust valves. The heat load per valve is low, and because these valves are arranged in a circle around the combustion chamber, gas flow is improved and the rigidity of the head is increased.

There is a spherical combustion chamber in the center of the head into which the nozzle of the unit-type injector delivers fuel through a single relatively large hole. The injectors are controlled by a worm drive connected to the governor control mechanism. Over each cylinder bank are two camshafts, one for the exhaust and the other for the intake valves. The low-inertia valve rockers have hydraulic lash adjusters.

This engine has three separate lubricating oil systems—piston cooling, valve gear, and major running



parts (crankshaft and connecting rod bearings). There is also a prestart lubricating system which insures lubrication before the engine is running. The governor is of variable speed hydraulic relay type driven by gears and incorporating a low oil pressure shutdown.

Mec-hydro Transmission

The Baldwin Maybach hydraulic transmission is fully automatic—responding to both locomotive speed and engine load demands. It consists of a permanently filled hydraulic torque converter, and a four-speed mechanical gear box with three pairs of helical gears operating in conjunction with positive over-running claw clutches. Operating controls are an integral part of the transmission.

The disengaging torque converter has an impeller driven by the engine, and a turbine with two sets of blading which shift along its axis to engage or disengage the output shaft. Shifting of the turbine rotor imposes a reverse set of blading in the oil stream to give a weak backward torque so that the gear trains can be synchronized and the claw clutches will engage smoothly. The control

system does the shifting automatically, and is arranged to prevent reversing of the transmission before the locomotive comes to a complete stop, even though the operator throws the reverser.

The converter is permanently filled with oil making the locomotive quickly responsive to any throttle position. Gears are always meshed, and the changes are accomplished by engaging or disengaging the claw clutches. The transmission is cooled by water bypassed from the radiator system through the water jacket surrounding the torque converter and the transmission oil heat exchanger.

Axle Drive

The axle drive housings are heavy cast steel to protect against external damage and to give maximum support for the gears. The spiral bevel gears and pinions are lubricated with a forced feed system from an integral gear type pump which also supplies oil to all the drive unit bearings. There are no waste-packed lubricators.

Torque reaction is absorbed by a member supported on the truck frame by a heavy-duty rubber-cushioned

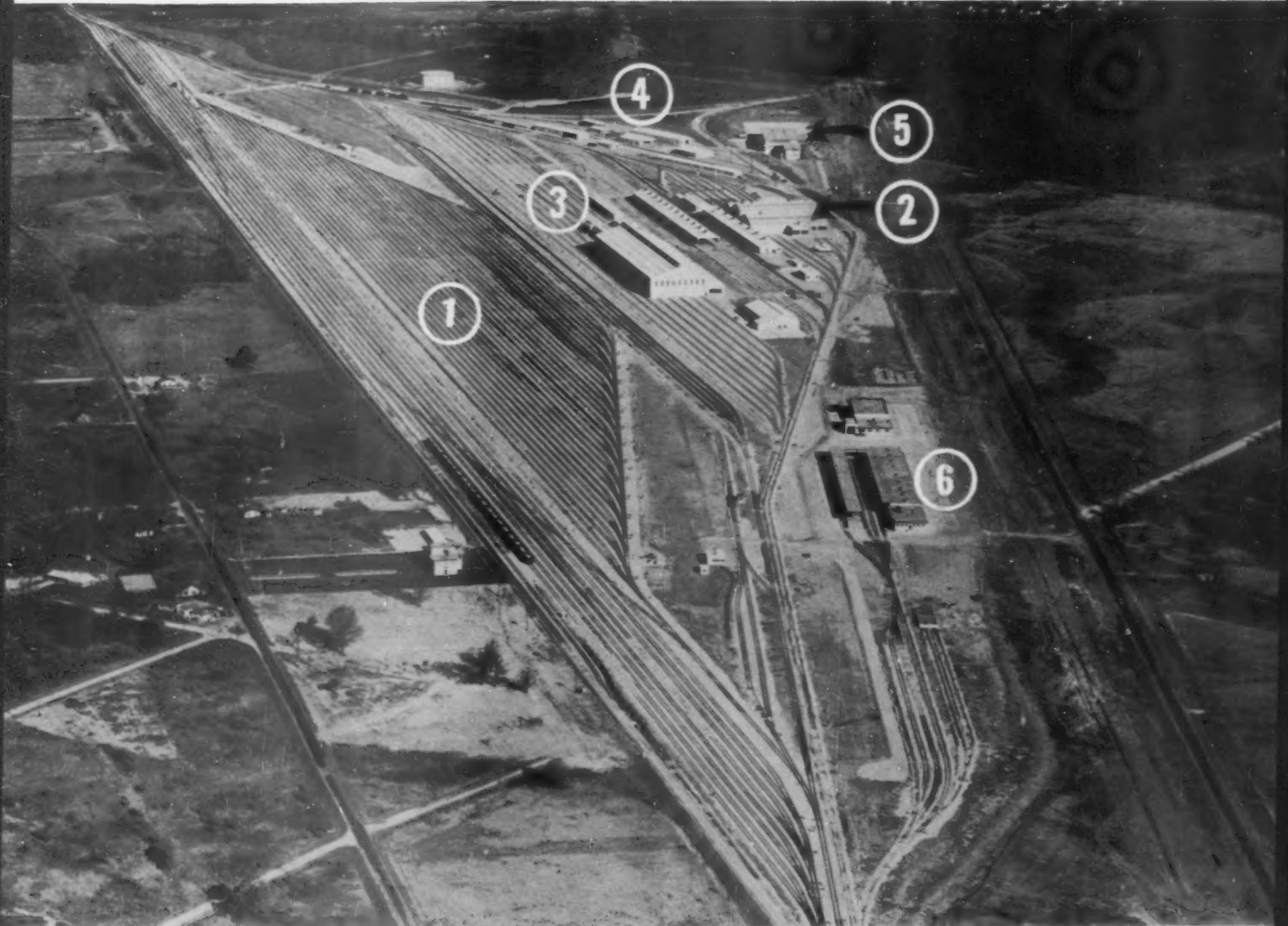
snubber. Drive shafts between the engine, transmission, and axle drives are equipped with flanged connections for easy removal. The universal joints all have sealed roller bearings. Timken roller bearings are used in the transmission and on the axle journals.

Automatic Control

The cab is conventionally arranged and this unit is equipped with GRS automatic train control for operation on the NYC. The diesel engine is in a compartment extending up through the locomotive body and is inspected from inside the locomotive only by opening a series of doors around and over the power plant.

Because of the relative movement between the truck-mounted diesel and the body, flexible connections have to be provided in the fuel and cooling water lines. Radiators for the power plants and for the transmission are at the rear of the locomotive body. The coupler at the front is a conventional retractable E type which makes it possible to handle this unit with a standard locomotive. At the rear is the special coupler required for the "Xplorer" equipment.

Not Just a Yard



DERAMUS YARD, built outside the limits of Shreveport, La., includes a 30-track classification yard (1), an engine terminal (2), and car-repair (3), roadway (4), adminis-

trative (5), and freight house facilities (6). A city in itself, this terminal has its own communication, electric, water, gas, drainage and sewage systems.

Outside Shreveport the KCS has a new plant, the Deramus yard,
that does more than replace three outgrown yards;
it has just about all the facilities needed to run a railroad

... It's a Terminal

In its new Deramus yard near Shreveport, La., the Kansas City Southern has a complete "railroad city." Four miles from congested areas, the new \$8.5-million installation includes, in addition to a classification yard and engine terminal, all the facilities necessary for concentrating the road's administrative, freight house, mechanical, roadway and other terminal operations at Shreveport in the one area.

To obtain maximum benefit from the new terminal, the road also built a cut-off line, 19 miles long, between its Kansas City and Dallas lines, to facilitate movement through the terminal of trains operating between New Orleans and Dallas. This Fox-Blanchard cut-off shortens the distance traveled by these trains by 19 miles.

Shreveport is the logical site for this \$8.5-million terminal, as it is the point where five of the road's main lines converge, i.e., from New Orleans, Port Arthur, Dallas, Kansas City and Hope, Ark. Because of these converging lines, the KCS had three existing yards in Shreveport prior to the construction of its new terminal. One was on the KCS tracks and the other two were on opposite sides of the city on the L&A tracks. All were in congested areas and the interchange of freight between them occurred at the peak of the city's vehicular movement. Hence, delays were unavoidable.

There were not enough tracks in these yards, and the tracks were relatively short, so that switching operations and the making up of trains were costly. The three yards will now be supplanted by the new terminal, except that one yard is being partially retained for interchange with other roads.

Operating Advantages

The new terminal, built on a 257-acre tract about three miles beyond the city limits, greatly reduces traffic through congested districts and results in quicker, more efficient handling of trains. It has 30 classification tracks which can be switched from either end, permitting faster

handling of cars for local delivery, for transfer to other lines, and for the make-up of outgoing KCS-L&A trains. It has eight receiving-and-departure tracks with capacities ranging from 155 to 170 cars each. These are interconnected with a series of crossovers at each end so that picking up or setting out of cars may be done by the shortest open route available.

Main-line trains nearing Deramus yard are governed by signals and switches controlled from a CTC panel on the second floor of the yard office building. The CTC controls the movement of these trains within a radius of about 10 miles.

Yardmaster's Control

The yard office is the nerve center controlling the movements of cars and trains in the Shreveport area. From a tower on the third floor the yardmaster commands a view of the entire yard and issues instructions over an extensive two-way speaker system to the switching crews making up or breaking up freight trains. Other crews, switching cars to and from industries, communicate with the yardmaster by radio.

The first floor of the yard office is taken over by various mechanical installations necessary in its operation, and locker and shower rooms for both white and colored workers. The second floor is for an office force, the terminal trainmaster and telegraphers. All of the office portion of this building, including its third floor, is air conditioned by one 10-ton and one 5-ton self-contained winter-summer air-conditioning units, with hot-water coils for winter heating.

A pedestrian tunnel extends under the tracks to connect this building to a stairway east of the ladder track. This tunnel is constructed of Armco Multi-Plate metal. While primarily intended to afford switching crews a safe and easy route between the yard office and points where they work, it also carries water, gas, power, communication and lighting lines into the yard office.

The yard also has an automatic

Fairbanks-Morse 200-ton track scale, the automatic feature being provided by a Streeter-Amet recording device.

Local shippers will also benefit by the construction of the new terminal because the LCL facilities were moved from a congested city location to Deramus yard.

Situated near one end of the classification yard, these facilities will permit later close-up time and earlier delivery than was formerly possible.

Much larger than those replaced, these LCL facilities are not only more than adequate for present business but are also sufficient for handling increased business. The main structure consists of a freight office and warehouse 50 ft wide, with a combined length of 530 ft. It is served by three stub tracks lying between the warehouse proper and an



CAR SHOP at right for heavy repairs will accommodate 40 cars. Running-repair shed at left covers two tracks.



FREIGHTHOUSE facilities at the new terminal replace inadequate city structures.



YARDMASTER'S OFFICE is on the top level of this building, which also houses the terminal trainmaster, clerks and CTC operator.



GENERAL OFFICE is for the executive and administrative personnel. It is completely air-conditioned and equipped with modern furniture.

NOT JUST A YARD . . . IT'S A TERMINAL

open covered platform, 24 ft wide, on the other side of which is an additional track for cars of unusual length. A covered cross platform, beyond the stub end of the tracks, connects the long platform with the warehouse.

When unloading or loading a car or truck, a communication system enables the handler at any door to identify the freight to checkers in an office which overlooks operations in the big warehouse section. Two checkers are able to keep an accurate account of the freight handled through several doors simultaneously. The offices of the freight agent and clerical force are air conditioned with a 10-ton self-contained winter-summer unit.

Piggyback auxiliary service is operated by the KCS-L&A to practically all points on the system. For loading and unloading the trailers a ramp is provided at the ends of two stub-end tracks adjacent to the freight-house. There is a truck-repair garage which also services and maintains a railroad-owned passenger bus which provides regular connecting service for employees between Deramus yard and Shreveport.

Extensive Mechanical Facilities

Deramus yard handles maintenance and running repairs of diesels for the southerly end of the system, as well as maintenance and repair of freight cars. Hence, extensive mechanical facilities were included in this terminal layout. The most prominent structures are the diesel shop and car shop buildings, which are constructed of corrugated-asbestos siding placed on structural-steel frames.

The diesel shop has four through

tracks. Each has the conventional depressed pit and elevated working platforms with convenient outlets supplying lubricating oil, air, water and steam. A jacking pad is available for truck and wheel work. A long bay on the southerly side of the tracks houses a parts room, shower and locker rooms for white and colored employees, and a laboratory, where frequent analyses of fuel and lubricating oils enable chemists to diagnose mechanical troubles and prevent minor engine defects from becoming serious.

A wide area in this shop on the opposite side of the tracks provides room for a machine shop with a complete line of all-new power equipment, an electrical shop, a cleaning vat, and two 1-R air-compressor package units and two Vapor steam generators. Both the compressors and generators use natural gas as fuel. The diesel shop is equipped with a 30-ton overhead traveling crane with a 5-ton auxiliary and with 1-ton electric hoists where needed on jib booms and on monorails.

Adjoining the diesel shop are related facilities, including a material-storage platform, outside tanks for lubricating oil, headlight and car oils, an oil drum and reclamation building, a garage for storehouse trucks and cranes, enginemen's locker rooms, torpedo and fusee storage building, sanding station with automatic dryer, and an engine-washing and fueling platform. The latter has no overhead pipe lines, these being placed underground or in races covered by steel gratings. The only appurtenances above ground are the unloading and delivery crane racks.

The car-repair facilities are centered in a car-shop building, 160 ft

by 500 ft. Five of the eight tracks serving this area go through the car shop; they are at 24-ft track centers to provide sufficient working room between tracks. On the east side of the tracks within the building is a large machine shop, as well as wash and locker rooms and a ramp for the use of automotive handling equipment when moving heavy materials in and out of the shop. The car shop will accommodate 40 cars.

Outside of the northerly end of the car shop is a 60-ft long, 35-ton transfer table which connects the five through tracks of the car shop with five others. To the north of the transfer table, and constructed over the middle track running through the car shop, is a shot-blast building where old paint and corrosion are removed from cars prior to repainting. The steel shot are expelled against the surfaces from compressed-air guns, after which the pellets are recovered and reused.

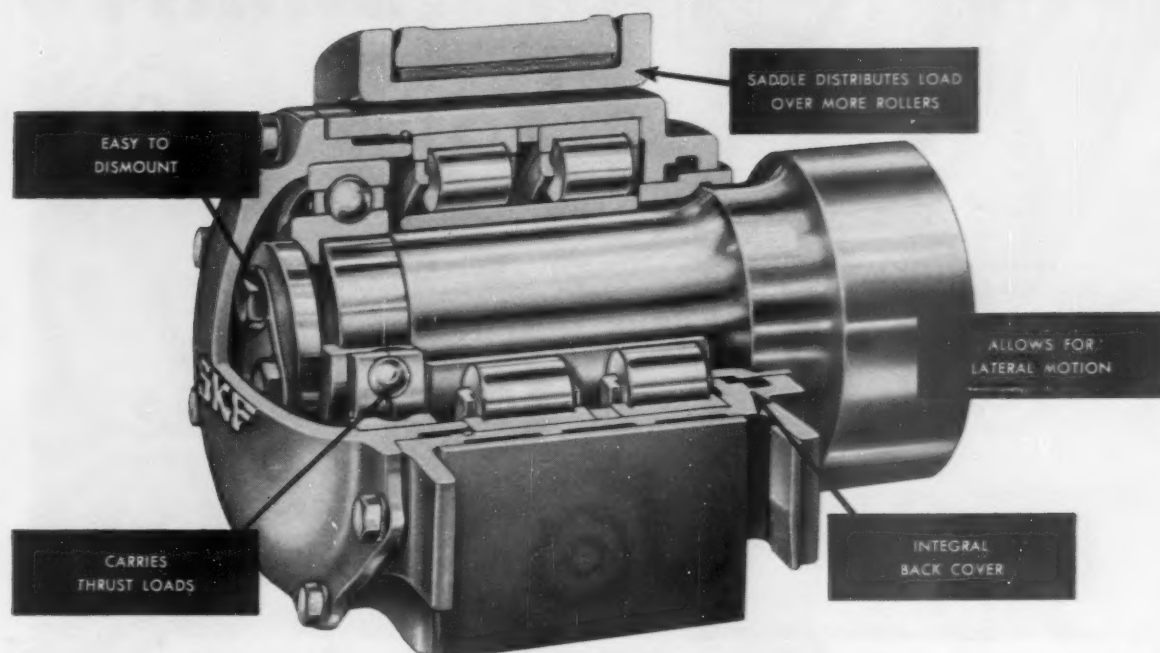
Long working platforms have been constructed along six of the rip tracks for the carmen. Other related structures include a wheel shop, a sign-and-stencil shop, a carpenter shop, lumber storage shed, and an ice-storage building, the latter being on a separate track to permit car icing.

To the east of these facilities are three tracks for running car maintenance. On two of these tracks is a long repair shed, 38 ft by 600 ft. This structure is of steel rigid-frame construction over which corrugated-asbestos roofing and siding is placed. The lower portions of the sides are open, and rows of translucent Corrugated panels are placed on the roof for lighting the interior. The lighting is supplemented by electric fixtures. Outlets for compressed air and electricity are on frame supports.

Included in a separate area of this terminal are seven buildings devoted
(Continued on page 63)

YOU GAIN *ALL* THESE ADVANTAGES

with **SKF** CYLINDRICAL ROLLER BEARING JOURNAL BOXES



LONGER LIFE—More than seven years' service on hundreds of passenger cars and diesel locomotives has fully demonstrated how **SKF** Cylindrical Roller Bearings exceed their calculated lives with consistent freedom from early fatigue failures. The **SKF** Saddle-Type Journal Box distributes the load more evenly to all rollers in the load zone resulting in longer bearing life.

EASY TO DISMOUNT—The **SKF** cylindrical bearing is the easiest type to dismount. Just remove the end cover and three axle cap bolts. The complete outer assembly can then be removed from the inner race without any special pulling tools. This permits faster cleaning and quicker, more thorough bearing inspection.

INTEGRAL BACK COVER—No need for removable back covers with **SKF** Cylindrical Roller Bearings. Cover is an integral part of the journal box—thus eliminating back cover bolts which often become loose causing lubricant leakage.

LATERAL MOTION—Up to $\frac{3}{4}$ " lateral can be provided, if desired, at no extra cost. This design includes, without added cost, a ball thrust bearing to carry thrust loads. With this combination of longer bearing life, lower maintenance costs and overall economy, it is obvious why more and more railroads are selecting **SKF** Cylindrical Roller Bearing Journal Boxes for their diesels and passenger cars.

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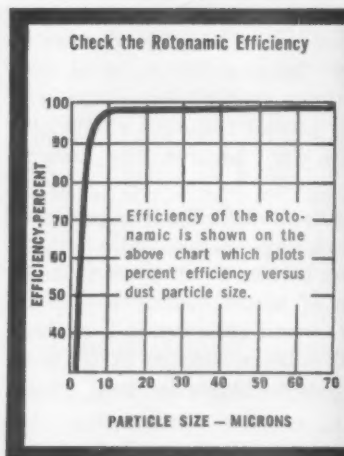
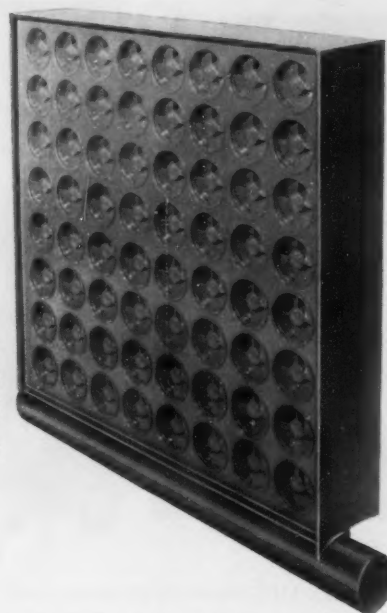
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SUBSIDIARY
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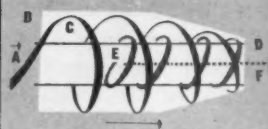
600,000 miles without maintenance

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Success Story!



Here's How the Rotonamic Works



Dust enters the inlet tube (a) and deflector vanes (b) set up a cyclonic action. While traveling along the primary chamber (c) dust particles are centrifuged towards the walls and carried into a special dust bin at (d) by the 10% Bleed-off air. The remaining 90% of the air reverses direction, spirals back along the discharge tube (e) centrifuging the remainder of the dust. Clean, filtered air reverses direction once again and exits at (f). The dirt laden air is discharged to atmosphere.

Engine air filters on railroads generally require servicing approximately every 5000-7500 miles. When Farr Rotonamic air cleaners—the successor to filters—were installed on the diesel engines of a major railroad, they performed under all conditions for 600,000 miles with minor maintenance only at annual shopping...and they are still operating at peak efficiency. The Rotonamic more than saved its low initial cost in direct maintenance during this period, plus assuring optimum protection for the engine under all operating conditions.

Rotonamic assures less engine wear because it offers a greater safety factor even in the most severe dust conditions. It never loads with dirt, is self-cleaning and maintenance free. Rotonamic kits are available for all commonly used diesel locomotives, and can replace present 4" thick panel filters on diesel engine assemblies.

Ask for a Rotonamic demonstration on your road. See how this revolutionary equipment can practically eliminate your engine air cleaner maintenance costs. Write for catalog information to Farr Company, P.O. Box 45187, Airport Station, Los Angeles 45, California.





Here's a look into the future

...with our Mr. Drager

Years after these solid aluminum bearings have been installed under the watchful eye of our Mr. Drager, reports from the field will read:

"Main and con rod bearings miked. No perceptible wear."

"Bearings checked and all in excellent condition. Reinstalled."

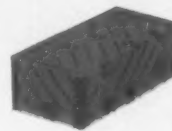
"Bearings checked to new dimensions."

How can we be so sure?

For one thing, we know the experience and meticulous care of Lew Drager and his department in installing these bearings

will help assure long life. For another, we've been getting many such reports on aluminum bearings in the O-P after five, six and seven years of heavy service.

From conventional bronze-backed, bonded type bearings to solid aluminum bearings is but one of many improvements made in the Opposed-Piston engine over the years. This continuing search for better performance and longer life is an important part of our customer service. It is the basis for our constant product improvement—part by part. Fairbanks, Morse & Co., 600 So. Michigan Ave., Chicago 6, Ill.



Be sure you get the Dividend of Quality—specify genuine Fairbanks-Morse replacement parts. They are identified by the orange carton—and the Fairbanks-Morse Seal of Quality.



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FIRST WITH THE LEAST... *Weight, that is!*



train X



"Featherweight" 78 lbs.

"Featherweight" 70 lbs.



Please Note—

This new Rota-Cline lightweight seat provides a weight saving per passenger of about 55 lbs. compared with a conventional seat. Translated into Train Operating Costs some interesting figures are revealed:—

Approximate

Standard Railroad Seat weight	180 lbs.
New Rota-Cline Light weight seat	70 lbs.
Weight saving per seat	110 lbs.
Per Passenger	55 lbs.
Per Train (400 passengers)	22,000 lbs.

or 11 TONS DEAD WEIGHT!

Cost of moving 1 TON of dead weight for 1 year.....\$ 200.00
or a NET SAVING of.....\$2200.00

That's something to think about when ordering your next seats!

...Ushers in a New Dynamic Era in Railroad Travel...

A challenge has been answered...bright new, lightweight, low cost, high speed luxurious travel...a competitive solution in a competitive market!...TRAIN "X". Congratulations to Pullman-Standard! We, at Coach Car, are immensely pleased that we were selected to make a small but strategic contribution to the new concept of railroad travel...a "featherweight" seat.

Throughout the entire frame are many vital and significant changes that mean durability and low maintenance cost and best of all...fabrics and metals and plastics have been blended in exquisite elegance. From every "seat" point it is easily the lightest, most comfortable and most beautiful of the famous line of custom Rota-Cline seats.

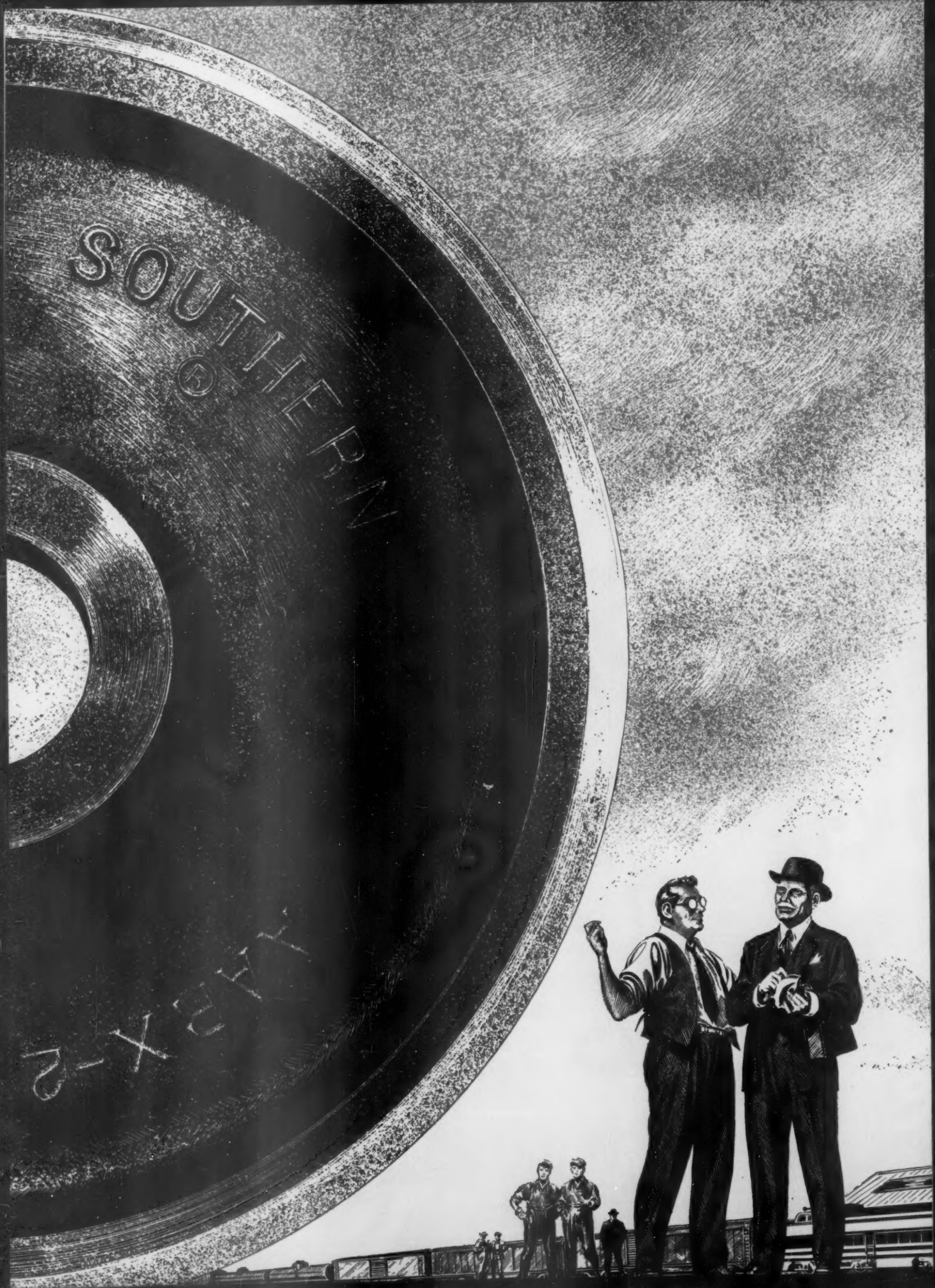
A new era has dawned in railroad travel!...and a challenge has been answered!

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DESIGNERS OF THE WORLD'S MOST LUXURIOUS, LIGHTWEIGHT SEAT.





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ENTHUSIASM!

Our new freight car wheel—the Southern 1.5% carbon cast steel wheel—has been on the market now for just over one year. It has had enthusiastic acceptance.* Typical statements by those using this new wheel tell the story!

Vice-President and General Manager: "Impressed by progress in developing the X-2 wheel."

Private Car Line President: "The test of this wheel which we conducted on our own cars testifies to the improved product—we agree the new wheel offers a potential for saving."

Superintendent of Car Department: "Impressed by the service performance of the Southern cast steel wheel."

Engineer of Research: "I like the quality of machining. It doesn't look like a freight car wheel."

Material Inspector: "Because all important surfaces such as tread, flange and hub face are machined, we found the accuracy of these surfaces exceptional. This is the first time we have inspected wheels which were as uniform in dimensions and otherwise."

Chief of Motive Power & Equipment: "I like your practice of having an experienced representative present during mounting of initial orders."

Wheel Shop Foreman: "Easier to bore and mount than any other kind of steel wheel."

Car Inspector: "I like the idea of using steel wheel gages when condemning these wheels. It eliminates guesswork."

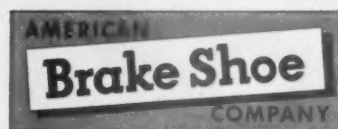
Car Foreman: "The markings on the back plate make it easier for my inspectors when writing up their wheel bills."

Chief Mechanical Assistant: "We should feel assured that this wheel is being made by the most modern methods in every respect."

Railroad President: "It is evident you have gone into this new project in a most carefully planned and executed way."

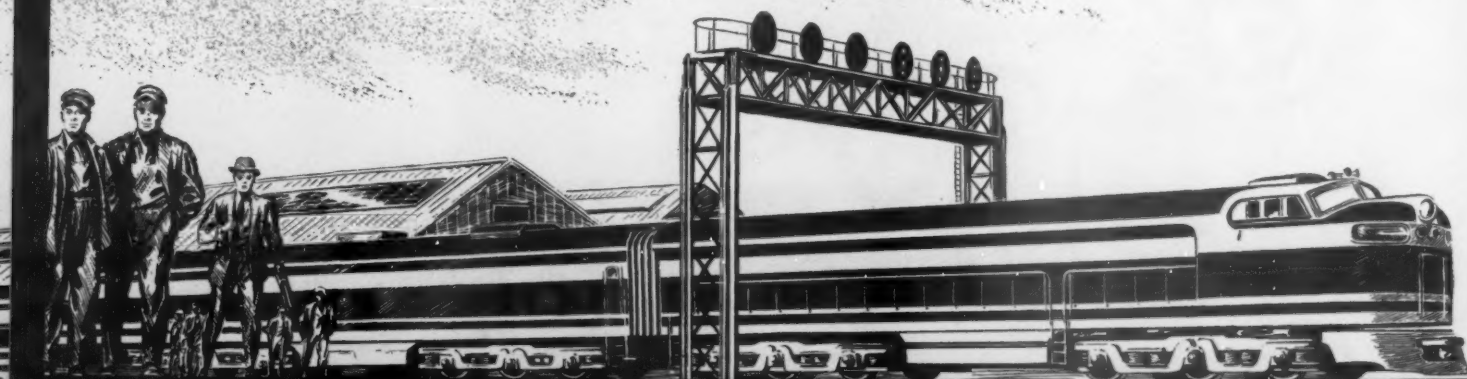
*Over 65 different customers have ordered more than 140,000 wheels to date.

A-415



SOUTHERN WHEEL DIVISION

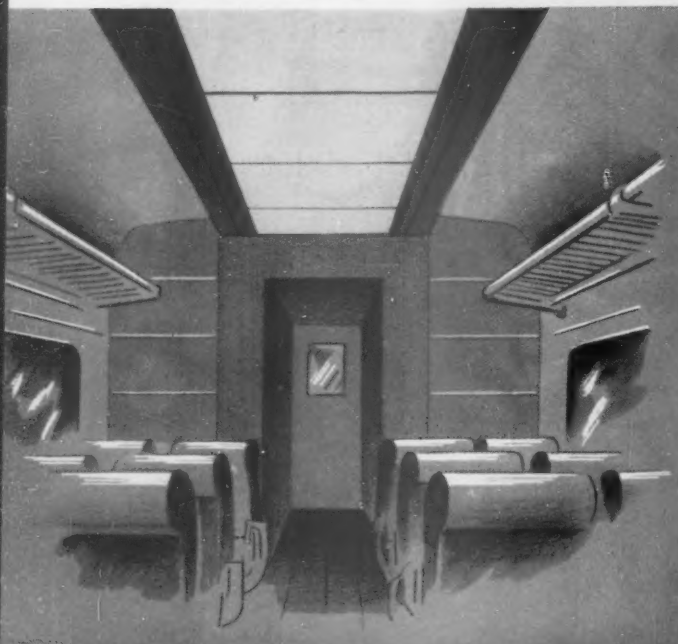
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incorporating flush type Air Distributors as used on the New York Central cars represent a noteworthy departure from conventional railroad passenger car lighting techniques. Three levels of uniform, shadowless illumination plus uniform air distribution are provided by this new luminous ceiling application.



THE "SAFETY" PACKAGE AIR CONDITIONER...

is a six ton unit, using Freon-12 and weighs only 1,000 pounds, complete. It is designed for location in the area over the wheel well and thus occupies no revenue space. The entire air conditioner can be set in place with a lift truck and normal service points are readily accessible from the front of the unit.

"Safety"

EQUIPMENT...

IS AN INTEGRAL PART OF THE
**LIGHTWEIGHT
TRAINS**

built by PULLMAN-STANDARD
for the
NEW YORK CENTRAL RAILROAD
and NEW HAVEN RAILROAD

The Safety Company's collaboration with the Pullman-Standard Car Manufacturing Company, New Haven Railroad and New York Central Railroad in the design and manufacture of "SAFETY" equipment for these cars has been challenging, indeed. We are proud to have our equipment incorporated in this new concept of railroad passenger car design.

THE **SAFETY** CAR HEATING AND LIGHTING **COMPANY** INC.

NEW YORK · CHICAGO · PHILADELPHIA · ST. LOUIS · SAN FRANCISCO · NEW HAVEN · MONTREAL

SAFETY COMPANY PRODUCTS INCLUDE: Air-conditioning Equipment • Genmotors • Generators • Fans • Regulators • Blower Units
Lighting Fixtures • Switchboards • Luggage Racks • Motor Alternators • Dynamotors • Motor Generators • Dual Voltage MG Sets

Not Just a Yard . .

(Continued from page 54)

to reclamation and other uses of the maintenance of way and structures department. These include a rail-saw mill, a reclamation building, a frog shop, a motor-car shop, a concrete plant, a bridge-and-building warehouse and a saw mill. These structures are all of metal construction with structural-steel frames. The frog shop is served by an overhead monorail track and hoists at each end of the structure for carrying the turnout material to and from outside storage areas. Adjacent to these buildings is another which houses offices and clerical forces of the signal, scale and water-service forces.

A three-story general-office building was constructed in the northeast portion of the yard, together with a large automobile parking lot, for housing all of the executive and administrative personnel at Shreveport, and their clerical forces, with the exception of a portion of the solicitation forces and accounting force of the L&A. This structure is reinforced concrete with a pink brick facing and is completely air conditioned by a 70-ton air-handling unit used with a chilled hot-water system. The three floor levels are served by an elevator.

Adjacent to the general office building, and connected to it by a covered walkway, is a two-story hotel-cafeteria building. This structure, for train and engine crews away from their home terminal, has 12 bedrooms and a large lounge on the upper level. Each bedroom is equipped with a Hollywood style double bed having a box spring and an air-foam mattress, a bathroom and shower, a night stand and a lounge chair. All of these rooms have outside exposure through three screened projected-type windows and have electric outlets for floor lamps.

The ground-floor level of this building, although it has additional bedrooms, is devoted primarily to a cafeteria for serving all employees wishing to use it. In addition to the cafeteria proper, it has a pantry, a large kitchen completely equipped with stainless steel appurtenances, refrigerators and cold-storage room, an outside screened-in garbage platform, and toilet and sleeping quarters for the cafeteria employees. This

building is of the same type of construction as the general office building and is likewise completely air conditioned.

Other Facilities

Because Deramus yard is situated outside of the city, it was necessary for the railroad to lay several miles of line to deliver water from the city's Cross Lake pump station. This line was constructed of cement-lined, cast-iron pipe with mechanical joints. It was looped throughout the building terminal area to furnish fire protection and guard against a "pressure drop" in case of fire. The railroad also constructed a sewage-disposal plant large enough to handle waste from 600 employees.

Other utilities include a 12,000-

volt power distribution system, which is "stepped down" to appropriate voltage at various points. A high-pressure gas line was also constructed by the railroad. Natural gas is used for heating as well as for production of steam and compressed air, which are used in the mechanical area and throughout the yard.

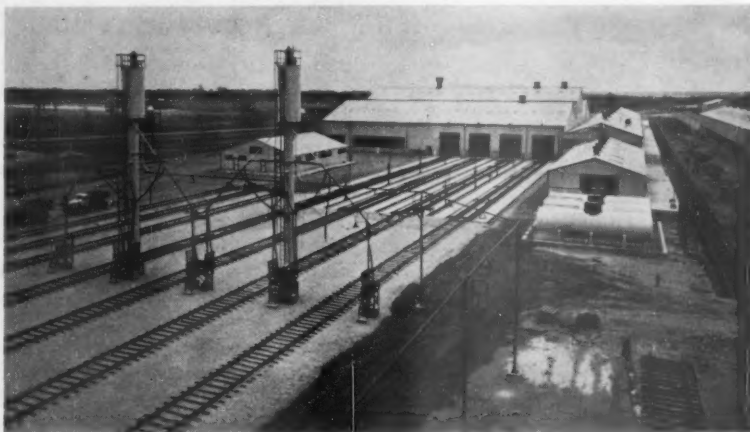
The telephone and telegraph, paging and communication lines are all placed underground. The yard lighting consists of mercury-vapor lamps on 35-ft poles, placed at about 125-ft intervals along the ladders or switching leads, and at about 158-ft intervals through the body of the yard.

This yard was constructed under the general direction of W. N. Deramus, president of the KCS-L&A, and under the direct supervision of V. V. Kirkpatrick, resident engineer.



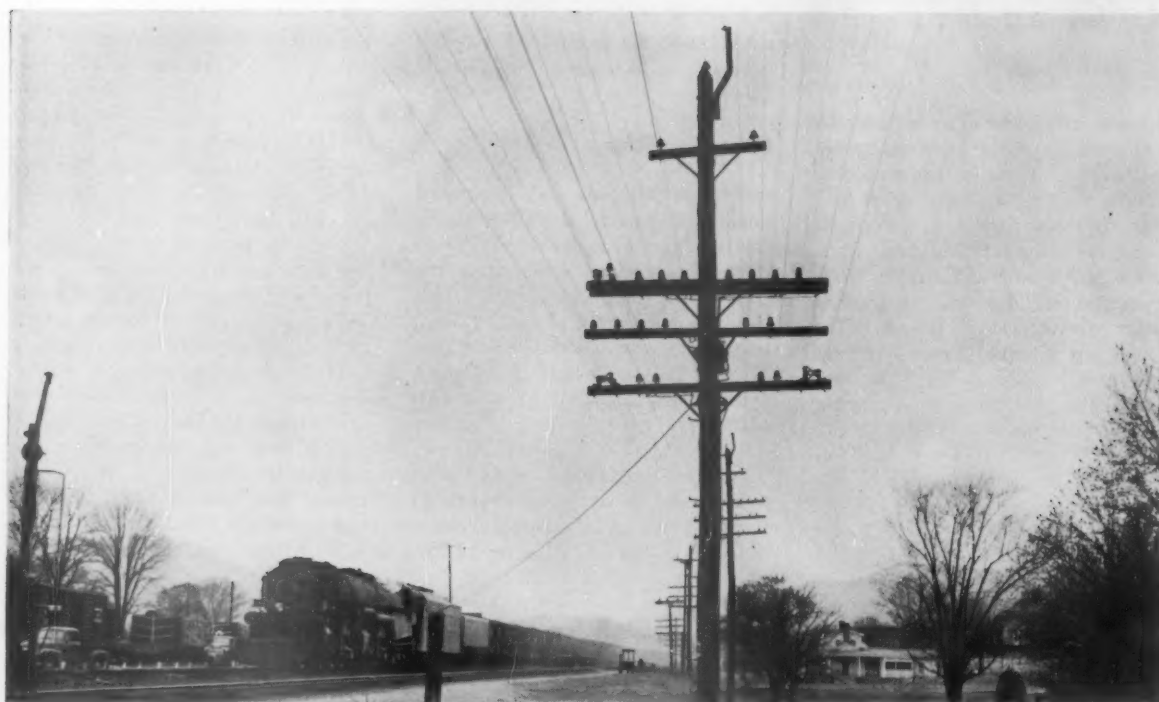
ROADWAY FACILITIES include a rail-saw plant, frog shop, concrete plant, signal maintainer's shop and

offices for engineering forces. General office and the hotel-cafeteria are in the background.



DIESEL SHOP has four tracks extending through it. In front of the shop are wash-off and fueling plat-

forms, with all pipes underground, and a sanding plant. It houses a laboratory where fuel analyses are made.



COMMUNICATION WIRES on bottom arm, with signal and power wires above.

ON THIS BIG, BUSY RAILROAD . . .

All Wires on One Pole Line

Western Union pole line removed
 Communication wires put on signal line
 Carrier used to secure more line circuits
 Extensive printing telegraph system installed

Next month the Norfolk & Western will complete a project which is said to be the most extensive change-over in the history of railroad communications.

For the past 60 years the N&W and Western Union have had a contract in which Western Union owned and maintained a pole line on 1,723 miles of this railroad, pin space being provided for the N&W to install line wires for communications circuits. Several years ago, however, Western Union adopted a policy of terminating its ownership in pole lines on railroads, including that on the N&W.

Meanwhile, on all but 228 miles of its system, mostly branch lines, the N&W had installed a pole line for its automatic signaling. This pole line, which extends along 1,495 miles of N&W routes, carries line wires for a 4,400-volt, three-phase, 60-cycle a-c signal power distribution circuit, and also two or more 110-volt a-c local circuits.

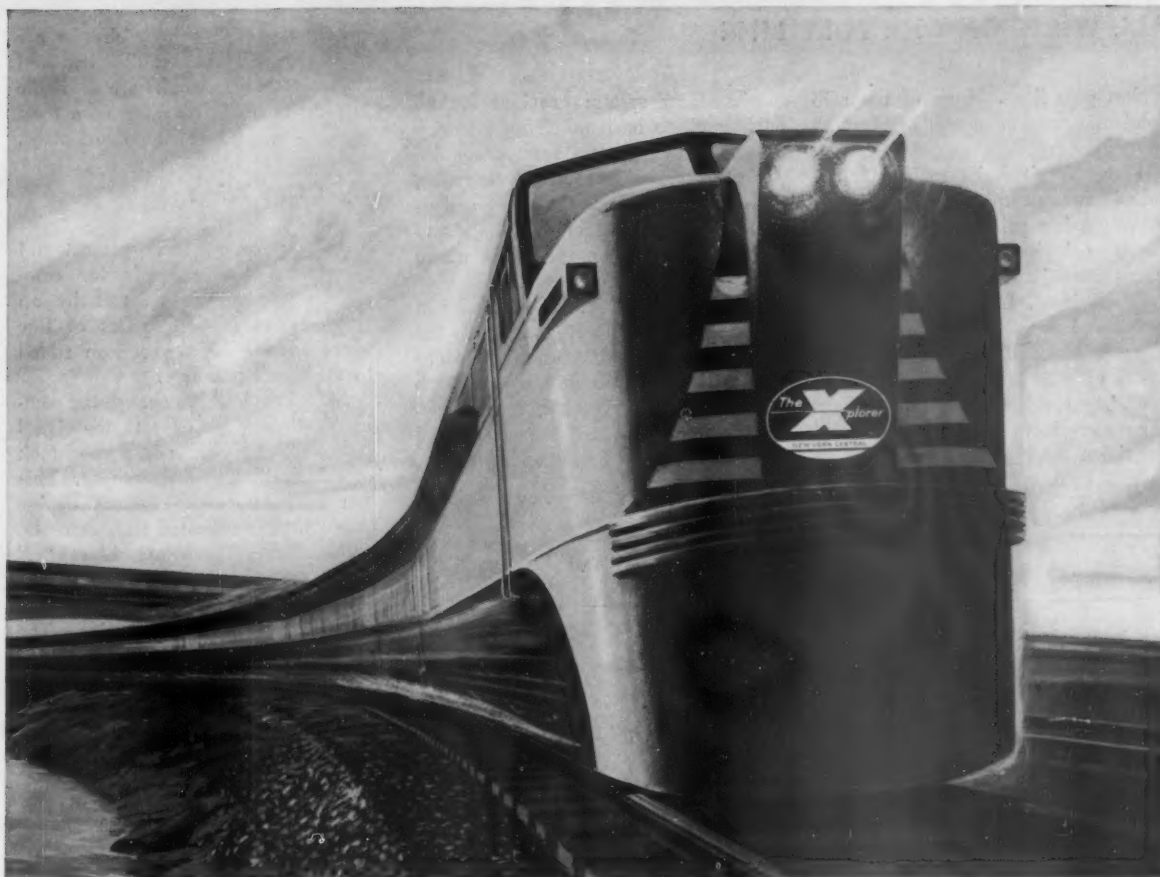
Previously the N&W had no communication circuit on the signal pole line, and there was some doubt whether such a circuit would operate properly because of interference from the 4,400-volt a-c. Authority was granted to install a test communica-

tion circuit on the signal pole line on 53 miles between Roanoke and Lynchburg to determine whether the inductive interference could be eliminated by transpositions in the communications wires. Results were satisfactory.

The next question was to determine whether the number of communications circuits required now, and in the foreseeable future, could be handled on four pairs of line wires on one crossarm, to be added to the signal pole line.

Printing Telegraph

Teletype equipment has been in service on the N&W to a limited extent—primarily for “long-haul” messages between Roanoke, Bluefield, Portsmouth, Columbus and Cincinnati. Further installation of printers had been postponed for inclusion in the overall changeover from Western



The glamour-coach Xplorer is lower, faster, more comfortable and more economical

HERE COMES *The* **X** *plorer*

*Tomorrow's train is here today on the rails
of the New York Central*

There's nothing newer under the sun than this bolt of lightning-on-rails called "The Xplorer."

It's lithe and lean, with a gleaming blue-and-yellow, all-aluminum body. It's low and road-hugging—two-and-a-half-feet lower than conventional trains.

The Xplorer is another manifestation of the "Train X" concept pioneered by New York Central Chairman Robert R. Young as far back as 1947. It is one of two new lightweight, low-center-of-gravity trains which will go into service on the Central this year! And it repre-

sents another giant step ahead in the railroads' war on passenger deficits.

But let's explore more of The Xplorer's wonders of advanced design.

Cross-country on a cushion of air. You're literally riding on springs of soft air—a unique air-suspension system that smooths out the roadbed ahead of you. **Torsion units** level out the ride. You stay on an even keel . . . or bank into turns at just the right angle.

Decorator-designed interiors in handsome, modern materials . . . *all-electric* heat and *six-ton* air conditioners for each

car . . . *windows tinted* top and bottom to absorb summer heat and eliminate harsh glare . . . food service on the "*Cruisin' Susan*" that comes right to your seat!

Though frankly experimental, The Xplorer and the other lightweight trains which are expected to follow it on the New York Central will usher in an era of rail travel that will take you more places easier . . . quicker . . . more comfortably and more conveniently than ever before. Ride The Xplorer soon between Cleveland and Cincinnati . . . and get a taste of the future. The new Golden Age of railroading will begin for you.

New York Central Railroad

ALL WIRES ON ONE POLE LINE

Union pole lines. Much of the railroad message traffic was handled by Morse telegraph.

Plans for the immediate future called for completely abandoning Morse, using printing telegraph between principal offices, including yards and important points where cars originate. Looking a few years into the future, the N&W could see the possible need for additional telegraph circuits for centralized car accounting services and also perhaps for centralized Teleregister service for ticket reservations.

The new system provides for all telegraph to be handled by printers. It includes complete Teletype equipment and switchboards at Roanoke, Bluefield and Portsmouth, as well as 37 printers in other terminals and outlying points on the N&W where cars originate or are switched.

General offices of the N&W are at Roanoke; therefore, much of the message traffic with reference to car movements, train consists, car distribution and midnight report of all operations on each division, is received at Roanoke. Plug-and-cord type

switchboards for printer circuits are in service at Roanoke, Bluefield and Portsmouth. If circuits are available to plug through, no copy of a message is made at a switchboard office.

Eight Line Wires

As planned, all these present and foreseeable future needs for communications are to be met by an arrangement of four pairs of line wires on one 10-in. crossarm added to the signal pole line.

Before deciding to change the communication wires over to the signal pole line, the N&W took a good look at this facility, and its record. This line was built with Southern pine poles, pressure treated with creosote, full length. These are Class "C" poles, spaced about 132 ft (40 per mile), as compared with 150 ft for the Western Union pole line. The minimum length of the signal line poles is 30 ft, so new higher poles (to get clearance for a new bottom arm) were required in very few locations.

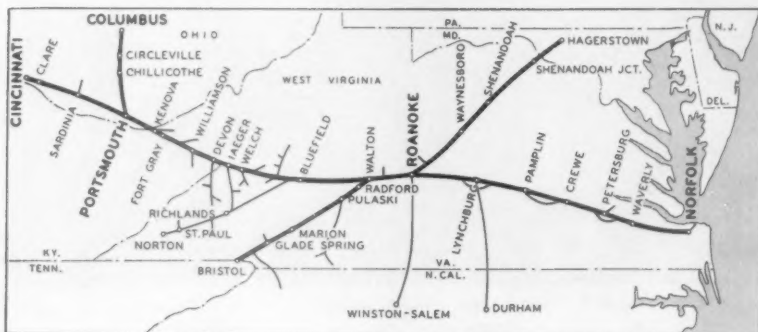
The first extensive sections of this signal pole line were built in 1926, and additional sections have been added from time to time when signaling was installed. Experience shows that, in each new section, a few poles fail because of decay within the first three or four years. From then on, the remainder of the poles are good for many years, with few failures.

With approximately 60,000 poles in service, not more than 10 to 12 are replaced annually, because of decay.

The conclusion was that the signal pole line was adequate to carry the additional arm for communications wire, and that maintenance of poles would not be effected by this addition.

To provide for present circumstances with respect to the 4,400-volt a-c circuit, and also in consideration of more and more carrier in the future on these same communication wires, the N&W decided to install transpositions for 30 kc in these four pairs of wires at the time they were strung on the signal pole line.

The complete communications improvement program, and changeover to the signal pole line, involved a total expenditure of approximately \$1,343,000, of which about \$195,000



A Complex Communications Job

The N&W is a big, heavy-traffic railroad with complicated communications problems. Double-track main line extends from Norfolk west through Roanoke, Bluefield and Portsmouth to Columbus, 663 miles, with a line from Portsmouth to Cincinnati, 111 miles. The important single-track Shenandoah valley line extends from Roanoke north 238 miles to Hagerstown, where connection is made with the Western Maryland and the Pennsylvania.

From Walton an important single-track line extends southwest 111 miles to Bristol, where connection is made with the Southern to Memphis, Birmingham and New Orleans. At Lynchburg the Southern route between Washington and Atlanta crosses the N&W. Through passenger trains of the Southern and the N&W between Washington and Chattanooga, Memphis and Birmingham operate via Lynchburg, Walton and Bristol. On its main line the N&W has six to fourteen passenger trains daily.

The N&W handles a good local freight traffic as well as through merchandise, manufactured products and agricultural products. Several "red-ball" freights provide fast through service for merchandise. Coal traffic, however, is the big feature of N&W operations. This coal is mined in the Appalachian range in Virginia, West Virginia and Kentucky, mostly in the area between Bluefield and Williamson, which is served by about 100 miles of main line and numerous branches, including a side line from Bluefield to Norton.

In 1955, 925,916 equivalent 50-ton loaded cars of coal were moved out of this area by the N&W. About 416,662 cars moved east for local delivery to connections at several points and to tidewater docks at Norfolk, and about 509,254 cars moved west from Williamson. Because numerous shippers and consignees are involved, handling this coal requires an extraordinary amount of railroad communication.

78 $\frac{1}{2}$ ¢

PER YEAR

MAINTAINS AN



AMPLIFIER!



J. L. Niesse, General Supt. Communications, New York Central System

This cost based on 2,000 E-C amplifiers in operation on the New York Central on January 1st, 1950 — some had been in service over 10 years. The average age of these amplifiers being 7 years. During the 5 year period of 1950 to 1955 the entire cost of all maintenance material, exclusive of tubes was \$7,854 — less than a dollar per unit per year.

WE BELIEVE THAT'S

ONE REASON WHY AMERICA'S RAILROADS

BUY MORE



AMPLIFIERS

THAN ALL

OTHER KINDS

PUT TOGETHER!



"Not just communication equipment, but RAILROAD Communication Equipment Exclusively."

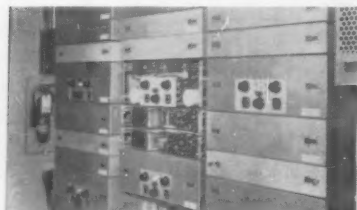


ELECTRONIC COMMUNICATION EQUIPMENT COMPANY

1249 W. LOYOLA AVE., CHICAGO 26, ILLINOIS

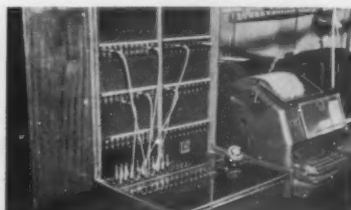
ALL WIRES ON ONE POLE

(Continued from page 66)
was for Teletype equipment. This program was planned and carried to completion under the jurisdiction of



SPEECH-PLUS DUPLEX telegraph carrier equipment.

J. A. Beoddy, superintendent telegraph and signals and under the immediate supervision of J. M. Hesser, assistant superintendent telegraph.



TELETYPE SWITCHBOARD and monitor machine.

AN EXTENSIVE TELEPHONE SYSTEM

The N&W operates six private manual telephone switchboards (PBX) which connect to phones in railroad offices, shops and yards. These switchboards, phones and connecting circuits,

except at Crewe and Portsmouth, are owned and maintained by the telephone company. At Norfolk in addition to the PBX switchboard the N&W owns and operates an Automatic Electric

private automatic exchange connected to 195 phones in railroad shops, enginehouses and yards.

At the PBX boards, operators are on duty only eight hours daily for five days each week. Therefore, telephone service through the manual switchboards is confined to regular office hours. Dial equipment handling all local switching at Norfolk, Roanoke and Portsmouth works round the clock. The PBX boards are connected by N&W line trunk circuits, nearly all of which are carrier.

On line of road, the N&W has a telephone in a box near each important main-track switch, such as ends of sidings. Also a box phone is located at or near each motor car setoff. On the main line these wayside box phones are spaced an average of one mile. The telephone train dispatching, in service on all divisions, is separate from all other phone systems.

Railroading | After Hours

Economists Could Be a Big Help

The transportation industry—and especially the railroads—would be in better shape today if transportation were getting the attention from leading economists that it used to get.

Many people are inclined to belittle the profession of economics—portraying economists as long-haired theorists, and as the scalawags who abolished the gold standard; invented “progressive” income taxes; and started the country on its spiral of limitless spending and creeping socialism.

Not all economists fall into this mischievous category. But even if the characterization were generally applicable, it still leaves the economists in a position of vital importance, whether for good or evil. They are the people who produce most of the ideas which, later on, become the stock in trade of politicians and public relations people.

And there's at least one good thing about practically all economists—except perhaps the doctrinaire socialists—and that is that practically

by
James G.
Lyne



Editor
Railway
Age

none of them wants to see the country's production carried on in a wasteful manner. Most of them believe that resources of capital and labor should be conserved—not wasted. Hence there's small chance that many of them—if induced to devote more attention to present conditions in transportation—would fail to come up with sound answers.

The Specialists Are Sound

In speaking thus of economists, I am referring to those who deal with questions of general economic policy—men of the standing of Ripley and Taussig of Harvard, a generation ago; and of Commons of Wisconsin and President A. T. Hadley of Yale. All of them discussed transportation in public utterances, but what modern economist of their caliber ever does so?

For specialists in the academic handling of transportation subjects, the present generation, of course, has no reason to apologize. One of the most indefatigable workers in this particular vineyard was the late G. Lloyd Wilson of Pennsylvania—to whom the whole transportation and traffic fraternity will long be indebted.

Incidentally, it is a privilege to be able to reveal that the Harvard Business School in the next six months or so will complete a couple of intensive research reports on the railroad passenger problem—each representing the full-time labor of a mature research worker.

The tentative title of one report is: “The Development of Cost Data for the Management of Railroad Passenger Service,” its author being Dwight R. Ladd. The other is called “Marketing Railroad Passenger Service,” by James E. Parks.

Both authors had full cooperation from experienced railroad men, and their studies are written distinctly from the “practical” rather than the theoretical standpoint.

Upgrade any **box car**
interior



BEFORE

AFTER



Exclusive ARMORTEX Process
Eliminates Use of
Expensive Mesh or
Glass Fabrics

• **SMOOTH, TOUGH SURFACE—EASILY
SWEEPED OR WASHED OUT**

• **ADHERENT**—a mastic which bonds to surface. Not a strippable material

• **FLEXIBLE**—tough, but not brittle. $\frac{1}{8}$ " film will bend around 1" mandrel

• **SOLVENT RESISTANT**—unaffected by mineral spirits, water or gasoline. Wood color of film will not stain or discolor

• **NON-HAZARDOUS**—an oil-in-water emulsion. Presents no fire hazard in storage or application.

• **INSECT RESISTANT**—made of synthetic resin and mineral fillers—absolutely impervious to insects.



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giving full details
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COMPANY
511 BURCH STREET
KANKAKEE, ILLINOIS

Serving American Railroads Since 1895

**QUICKLY,
ECONOMICALLY**

with

ARMORTEX

*a tough, permanent
plastic car liner*

*Compare Costs, Materials
and Application with
Any Other Process*

Here's really big news the whole railroad industry has been waiting for! Now, for the first time, it is possible to apply a quick, economical protective coating to box car floors and walls which insures the *permanent*, superior surface needed for shipment of high grade bulk commodities such as grits, flour, sugar and grain.

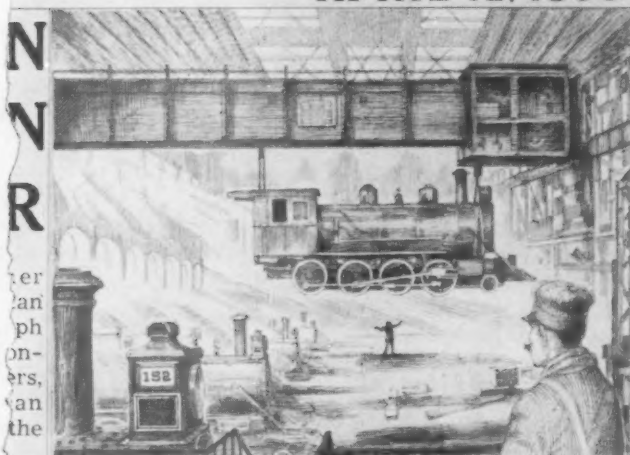
Armortex, an amazing new discovery of the J. W. Mortell Railroad Division, completely eliminates the costly preparation of cars for individual loadings. Internal car surfaces coated with Armortex no longer splinter or deteriorate under normal operating conditions...thus resulting in a reduction of claims due to leakage, infestations, package damage.

Still another big advantage of new Armortex is its ease of application. One man can cover a box car floor in less than 30 minutes...readying the car for service the next day. By spraying, brushing or troweling, Armortex can be applied at any shop, rip-track or siding without returning the car to a central maintenance location.

Armortex is also available in Caulking Grade for sealing in large cracks and gouged-out surfaces in lining, doorposts, etc.



APRIL 12, 1895



LOCOMOTIVE WORKS FORECAST ELECTRIC MOTOR OPERATION

NEW YORK, April 12—A large number of tools, cranes, etc., in the shops of the Baldwin Locomotive Works are now operated by electric power. It is estimated that within a year all the various tools will be driven by electric motors, either direct connected, or driving lines of shafting operating a group of tools.

Through the courtesy of the Baldwin Locomotive Works we print an engraving of a 100-ton electric crane operating in the erecting shop.

The generating plant from which the motors at present used in the shop are supplied is temporary. It consists of two 100-h.p. dynamo

Dateline 1895. Then, as now, American railroads were adopting new and better electrical tools for a more efficient operation. And, even in the '90's, Graybar already had over 25 years experience in supplying "everything electrical" to America's expanding transportation industry.

Today, you'll find well over 100,000 different electrical items listed in Graybar catalogs. And your Railroad Pocket List gives the addresses of over 130 Graybar offices and warehouses in a pattern of locations that means prompt deliveries of products bearing the names of America's leading manufacturers to railroads from coast-to-coast.

For tools — hand and power operated — in fact for everything electrical for your shops, call upon your nearby Graybar Railroad representative for assistance — he'll be glad to oblige.

100,000 electrical items are
distributed throughout the nation...

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via
Graybar

GRAYBAR ELECTRIC COMPANY, 420 LEXINGTON AVENUE, NEW YORK 17, N. Y.
OFFICES AND WAREHOUSES IN OVER 130 PRINCIPAL CITIES

Organizations

American Society of Traffic and Transportation.—The society's June 1956 examinations will be held at various schools throughout the country on June 14-15. Applications are available from E. H. Breisacher, registrar, P. O. Box 2128 Middle City Station, Philadelphia 3, Pa. Registrations will be accepted up to May 23.

Association of Interstate Commerce Commission Practitioners.—A five-man panel on the general subject of "Cost of Service in Rate-making" will feature the 27th annual meeting at the Hotel Bellevue-Stratford, Philadelphia, May 17-18. The panel will be held on the afternoon of May 18. Other features include a luncheon address by Robert W. Minor, member of the ICC.

Material Handling Institute, Inc.—The 1956 exposition will be held in the Public Auditorium, Cleveland, June 5-8. In addition, 12 technical sessions sponsored by the American Material Handling Society are scheduled the mornings of June 5-7.

Michigan Traffic and Transportation Conference.—"Trends in Transportation" will be the theme of the third annual conference at Michigan State University, East Lansing, Mich., May 9-12, sponsored by the Michigan Industrial Traffic League, the MSU College of Business and Public Service and 18 local traffic and transportation organizations.

Supply Trade

A. J. McDonald, vice-president and Washington, D. C., representative of **American Steel Foundries**, has retired.

Walker H. Evans, Philadelphia district manager of **Baldwin-Lima-Hamilton Corporation**, has retired.

H. B. Caldwell has been appointed manager of the New York district office of **Whiting Corporation**, in charge of sales in eastern New York state, northern New Jersey and all New England.

Caterpillar Tractor Company will open a new wheel tractor and motor grader manufacturing plant at Decatur, Ill., May 21. The new plant will free Caterpillar's Peoria, Ill., facility for full production of diesel engines and crawler tractors.

J. S. Peterson has rejoined **Fairbanks, Morse & Co.** to become manager of electronic sales, Scale Division.

Financial

Chicago & North Western.—Stock Option Plan.—Stockholders will be asked at the May 15 annual meeting of this road to approve a plan under which Ben W. Heineman, chairman, and C. J. Fitzpatrick, president, would be given options to buy 30,000 and 15,000 shares of common stock, respectively, at \$26.625 a share. Also to be approved at the meeting is a proposal to replace the finance committee of the board of directors with an executive committee.

New York, Susquehanna & Western.—Moves to End Passenger Service.—This road has petitioned the New Jersey Board of Public Utility Commissioners for authority to abandon its passenger operations. The road said it could immediately eliminate total out-of-pocket losses, which came to \$302,379 in 1954 and \$248,241 in 1955, if "all passenger service were discontinued." Other transportation facilities—bus and railroad lines—could absorb its present passenger volume of 13,862 passengers on 31 daily east-bound trains and 13,173 on 29 daily westbound trains, the road said. The NYS&W operates between Paterson and other New Jersey communities and terminals in Jersey City and North Bergen, where other facilities are used for travel to New York City.

Pennsylvania.—Merger of Subsidiaries.—The ICC has authorized merger of the Pittsburgh, Cincinnati, Chicago & St. Louis into the Philadelphia, Baltimore & Washington (Railway Age, Dec. 12, 1955, p. 15).

St. Louis-San Francisco.—Proposed Stock Exchange.—Directors have approved a plan to offer preferred stockholders income debentures and common stock in exchange for their preferred shares.

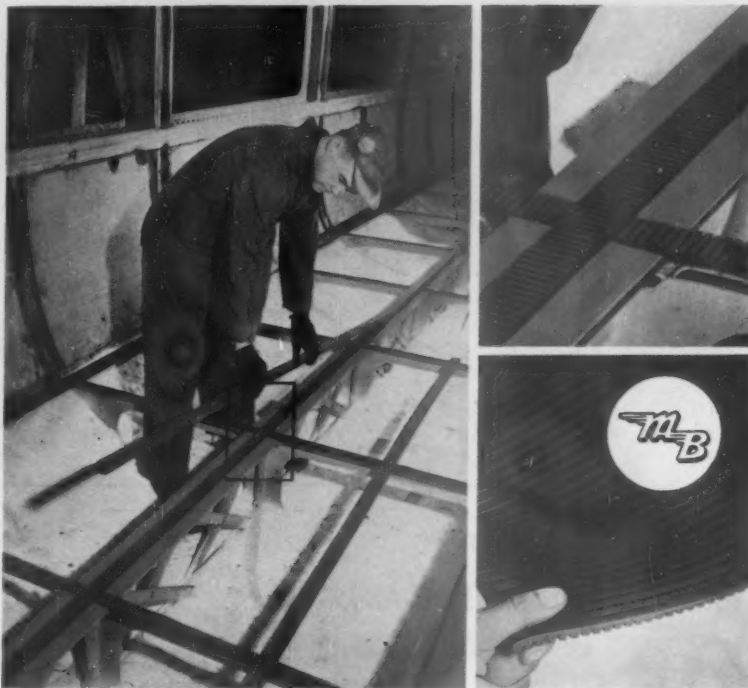
Preferred holders would be given the right to receive for each share \$100 principal amount of debentures, one-quarter common share, and cash equal to the preferred dividend payable this year. The Frisco has 616,000 outstanding preferred shares.

The plan will be submitted to the road's May 8 annual shareholders' meeting. If approval is received, it will go to the ICC for authorization.

Seaboard Air Line.—Stock Split Approved.—Stockholders at the April 24 annual meeting in Norfolk, Va., approved a two-for-one split of the common stock. The split, previously approved by the ICC, calls for increasing authorized common stock to 10,000,000 \$20-par shares which would replace 5,000,000 \$40-par shares. After the split, 4,898,950 new shares will be outstanding in the hands of the public. There is no present intention, the road says, to issue any of the remaining 5,101,050 shares.

Passengers will experience

less noise and vibration on "Train X"



...because of ISOMODE® PADS

ISOMODE PADS have been used for years under hard working machinery to absorb vibration and shock and to muffle noise. For these very same advantages they have been designed into the floor structure of Pullman-Standard's "Train X."

As shown in the photograph, strips of these 1/16-inch-thick, ribbed neoprene pads are attached to the floor's supporting aluminum members. Over this goes the actual floor. In effect, the floor "floats" on a resilient, vibration-absorbing cushion. This serves to isolate passengers from road vibration and to reduce noise.

Isomode Pads offer an economical answer to a host of vibration problems in industry. Interested? Write for details.

MB manufacturing company

A division of Textron American, Inc.

1060 State Street,
New Haven 11, Conn.

Railway Officers

CHICAGO & NORTH WESTERN.—Larry S. Provo, vice-president and comptroller of the **Minneapolis & St. Louis**, has been elected vice-president and comptroller of the C&NW at Chicago, succeeding J. A.



Larry S. Provo

Wood, comptroller, who will serve as consulting comptroller until his retirement in September.

Earl L. Walston has been appointed general superintendent of

motive power and machinery at Chicago. He was formerly master mechanic western lines of the **Illinois Central** at Waterloo, Iowa.

The position of executive vice-president has been abolished. The road gave no hint as to the future of J. E. Goodwin, who had been executive vice-president since July 1955.

DENVER & RIO GRANDE WESTERN.—A. N. Biscard, division locomotive foreman, appointed assistant chief mechanical officer at Denver succeeding R. M. McLean, retired.

ERIE.—Rapha P. Steen, assistant superintendent property protection and fire prevention at Youngstown, Ohio, has been appointed chief of police at that point. Frank B. Wildrick, superintendent of property protection and fire prevention at Jersey City, has retired. All correspondence previously addressed to Mr. Wildrick is to be addressed to Mr. Steen. The positions of superintendent and assistant superintendent of property protection and fire prevention have been abolished.

Michael R. Fitzgerald has been appointed general New England agent at Boston, succeeding A. M. Monahan, deceased.

MINNEAPOLIS & ST. LOUIS.—Walter E. Hanson, assistant com-

troller, has been elected vice-president and comptroller, with headquarters as before at Minneapolis, succeeding Larry S. Provo, newly elected vice-president and comptroller of the **Chicago & North Western**. Virgil M. Dissmeyer, senior accountant, Arthur Andersen & Company at Omaha, has been named special assistant in the M&StL's accounting department.



Walter E. Hanson

Oscar Carlson, storekeeper at Minneapolis, has been named director of purchases and stores. He succeeds F. B. Matthews, purchasing agent.

F. A. Gibbs has been named superintendent of safety and property protection.

TOLEDO, PEORIA & WESTERN.—James L. Patterson, general agent at Cincinnati, retired May 1. Frank H. Sanders, general agent at Indianapolis, appointed sales manager at Cincinnati.

VIRGINIAN.—E. W. Barnes, general agent at Norfolk, appointed district freight agent there. M. E. Neal succeeds Mr. Barnes as general agent.

WABASH.—H. P. Horne, general agent at Boston, retired April 1, and the position of general agent has been abolished. William J. Heerman has been appointed New England traffic manager at Boston, and Carl H. Hartmann has become division freight agent at Chicago.

OBITUARY

Theodore Schmidt, 72, retired general attorney of the **Pennsylvania**, died April 24 at Chicago.

Charles A. Shaffer, 77, retired general machinery superintendent of the **Illinois Central**, died April 26 at Little Rock, Ark.

C. W. Musson, general agent of the **Quanaah, Acme & Pacific** at Detroit, died April 8.

Burt A. Beck, 84, retired assistant secretary of the **Illinois Central**, died April 30 at Chicago.

Meet TOMORROW'S
PLATFORM STANDARDS

with
QUIETER
FASTER
ENDURING

STANDARD
Express
Baggage
Mail
TRUCKS

available
in
TRACTOR
and
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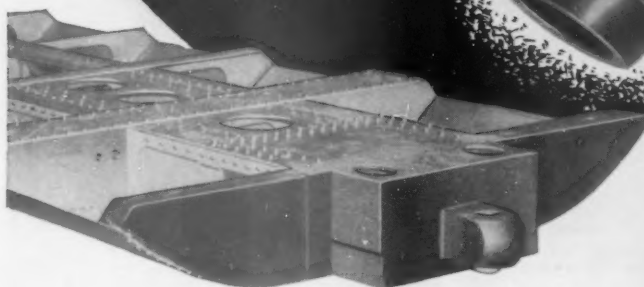
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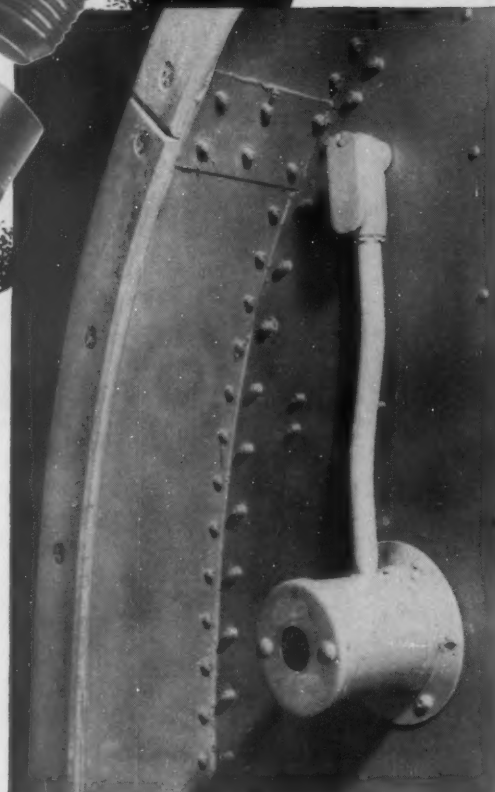


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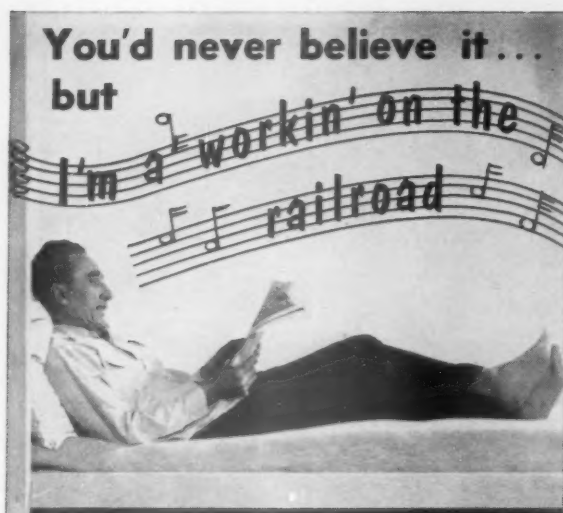
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